

**NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, ORANGE COUNTY, CALIFORNIA**

FINAL

**ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN
NON-TIME-CRITICAL REMOVAL ACTION FOR
INSTALLATION RESTORATION PROGRAM
SITE 73 – WATER TOWER AREA**

Site Status:
Category of Removal:
CERCLIS ID:
Site ID:
Date:

Non-National Priorities List
Non-Time-Critical Removal Action
CA0170024491
IR Site 73
17 July 2002

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ACRONYMS/ABBREVIATIONS

ARAR	applicable or relevant and appropriate requirement
bcy	bank cubic yard
bgs	below ground surface
Cal. Code Regs.	<i>California Code of Regulations</i>
Cal/EPA	California Environmental Protection Agency
Cal. Fish & Game Code	California Fish and Game Code
Cal. Health & Safety Code	<i>California Health and Safety Code</i>
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
C.F.R.	<i>Code of Federal Regulations</i>
ch.	chapter
COPC	chemical of potential concern
CRDL	contract-required detection limit
CRQL	contract-required quantitation limit
CTO	contract task order
DERP	Defense Environmental Restoration Program
div.	division
DoD	Department of Defense
DON	Department of the Navy
DTSC	(California Environmental Protection Agency) Department of Toxic Substances Control
EE/CA	engineering evaluation/cost analysis
ELCR	excess lifetime cancer risk
Exec. Order No.	Executive Order Number
Fed. Reg.	<i>Federal Register</i>
FFSRA	Federal Facilities Site Remediation Agreement
FSI	focused site inspection
ft	foot
HI	hazard index
HQ	hazard quotient
IAS	initial assessment study
IDL	instrument detection limit

Acronyms/Abbreviations

IR	Installation Restoration
IRP	Installation Restoration Program
JEG	Jacobs Engineering Group Inc.
kg	kilogram
lcy	loose cubic yard
µg	microgram
µg/kg	micrograms per kilogram
MDL	method detection limit
mg	milligram
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NACIP	Navy Assessment and Control of Installation Pollutants (Program)
NAVWPNSTA	Naval Weapons Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPL	National Priorities List
NPV	net present value
NTCRA	Non-Time-Critical Removal Action
NWR	National Wildlife Refuge
Ogden	Ogden Environmental and Energy Services Co., Inc.
O&M	operations and maintenance
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PM ₁₀	particulate matter, less than 10 micrometers in diameter
PRG	preliminary remediation goal
pt.	part
Pub. L. No.	public law number
QC	quality control
RA	relevant and appropriate
RAC	remedial action contractor
RAO	removal action objective
RCRA	Resource Conservation and Recovery Act

RWQCB	(California) Regional Water Quality Control Board
§	section
SARA	Superfund Amendments and Reauthorization Act
SCAQMD	South Coast Air Quality Management District
SHPO	(California) State Historic Preservation Officer
STLC	soluble threshold limit concentration
SVOC	semivolatile organic compound
SWDIV	Southwest Division Naval Facilities Engineering Command
TBC	to be considered
TCLP	toxic characteristic leaching procedure
tit.	title
TTLC	total threshold limit concentration
ULBV	upper limit background value
U.S.C.	<i>United States Code</i>
U.S. EPA	United States Environmental Protection Agency
WET	(California) Waste Extraction Test

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Southwest Division
Naval Facilities Engineering Command
Contracts Department
1220 Pacific Highway
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17 July 2002

SUBJECT: ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN FOR
REMOVAL ACTION AT NAVAL WEAPONS STATION SEAL BEACH
INSTALLATION RESTORATION PROGRAM SITE 73, SEAL BEACH,
ORANGE COUNTY, CALIFORNIA

Site Status: Non-National Priorities List
Category of Removal: Non-Time-Critical Removal Action
CERCLIS ID: CA0170024491
Site ID: IR Site 73

I. PURPOSE

The purpose of this Action Memorandum/Removal Action Work Plan (hereinafter "Action Memorandum") is to document, for the Administrative Record, the Department of the Navy's (DON's) decision to undertake a non-time-critical removal action (NTCRA) for lead-impacted soil at Naval Weapons Station (NAVWPNSTA) Seal Beach Installation Restoration (IR) Program (IRP) Site 73, Water Tower Area. The Department of Defense (DoD) has the authority to undertake Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response actions, including removal actions, under Title 42 *United States Code* (U.S.C.) Section (§) 9604, 10 U.S.C. § 2705, and federal Executive Order Number (Exec. Order No.) 12580. Furthermore, this Action Memorandum satisfies the requirements of *California Health and Safety Code* (Cal. Health & Safety Code), Chapter 6.8.

This document is prepared in accordance with United States Environmental Protection Agency (U.S. EPA) instructions. These instructions are in the Superfund Removal Procedures: Action Memorandum Guidance (U.S. EPA 1990). (References are listed in Attachment A.)

The water tower area was designated as IR Site 73 after the Federal Facility Site Remediation Agreement (FFSRA) was signed in 1991 by the DON, the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) (Department of Health Services at that time), and the California Regional Water Quality

Control Board (RWQCB) Santa Ana Region. The FFSRA was amended in August 1994. IR Site 73 will be included in a future, revised version of the FFSRA. In the interim, all activities related to IR Site 73 will be performed in accordance with the current FFSRA.

The goal of the NTCRA is to address lead-contaminated soil under and surrounding the water tower at IR Site 73 that presents unacceptable risk to ecological receptors, while minimizing potential impact to cultural resources to the extent practicable. To accomplish this goal, the Navy is proposing to first perform data recovery by a trained archaeologist followed by excavation under the surveillance of an archaeological monitor and Native American monitor, and off-site disposal of approximately 400 bank cubic yards (bcy) (in-place soil volume) of contaminated soil at IR Site 73, Water Tower Area, NAVWPNSTA Seal Beach. This proposed action will eliminate the identified pathways of exposure to current ecological receptors at IR Site 73. Excavated soil will be transported to a permitted landfill for disposal.

This removal action is deemed consistent with National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Title 40 *Code of Federal Regulations* (C.F.R.) Part (pt.) 300, and Cal. Health & Safety Code Chapter (ch.) 6.8, based on the findings of "actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants" action (40 C.F.R. § 300.415 [b][2][iii]).

There are no nationally significant or precedent-setting issues associated with this site.

II. SITE CONDITIONS AND BACKGROUND

IR Site 73 is approximately a 6-acre area in the southwestern quarter of the base. The site is located east of Seal Beach Boulevard, south of the base's Main Gate and Forrestal Avenue, and west of Building 206. The site consists of the area under and surrounding the station's water tower. It is predominantly flat, with a few mounded areas in the immediate vicinity of the water tower. The area is grass-covered and landscaped with scattered trees and shrubs. The site falls within a known archaeological site (CA-ORA-322/1,118) and, in 1997, an archaeological investigation by Ogden Environmental and Energy Services Co., Inc. reconfirmed the significance of the site's cultural resources.

Since its construction in about 1944, the water tower has been periodically sandblasted and repainted. Some of these sandblasting/repainting activities resulted in the release of sandblasted paint chips to the area surrounding the water tower (CH2M Hill 2000).

NAVWPNSTA Seal Beach is part of the Commander Navy Region Southwest, and its major claimant is the Commander-In-Chief U.S. Pacific Fleet. The station provides fleet combatants with ready-for-use ordnance. Because of its geographic location, the station serves as a supply point for operating Navy and Marine Corps bases in southern California.

Site conditions and background information have been compiled from previous field investigation reports.

A. Site Description

This section addresses U.S. EPA Removal Action Work Plan requirements.

1. REMOVAL SITE EVALUATION

The Navy began identifying potentially contaminated sites at NAVWPNSTA Seal Beach with the commencement of the 1985 initial assessment study (IAS) (NEESA 1985). The sites were identified as "potentially contaminated" on the basis of the results of record searches, aerial photographs, field inspections, and interviews with NAVWPNSTA Seal Beach personnel. The IAS work was conducted under the Navy Assessment and Control of Installation Pollutants (NACIP) Program, which was instituted by the Navy in response to the DoD's IRP requirement. With the passage of the Superfund Amendments and Reauthorization Act (SARA) in 1986, the Navy adopted the CERCLA terminology and process by replacing the NACIP Program with the current IRP.

IR Site 73 was not identified as a potentially contaminated site during the IAS, but was later added to the IRP. As part of the 1997 stationwide background study, Navy personnel collected soil samples for analysis from the immediate vicinity of the water tower. The analytical results from this sampling event reported elevated lead concentrations in soil. Based on these results, additional soil sampling was warranted and it was determined that IR Site 73 would be included in the 2000 focused site inspection (FSI) Phase II conducted by CH2M Hill. The objectives of the FSI Phase II were to determine the lateral and vertical extent of contamination from metals and semivolatile organic compounds (SVOCs) at the site and to screen for ecological and human-health risks. Because IR Site 73 is within a known archaeological site, an archaeological monitor and a Native American monitor were present during sampling activities to minimize potential impacts to the site. Results of the FSI Phase II are as follows:

- Nine metals were reported at concentrations above the upper limit background values (ULBVs) at IR Site 73. Lead, cadmium, and copper, mainly in surface soil samples, were the metals most frequently reported above ULBVs. Twenty SVOCs including 14 polynuclear aromatic hydrocarbons (PAHs) and 3 phthalates (common laboratory contaminants) were mainly reported in surface soil samples.
- Based on human-health risk screening, the risk from SVOCs is considered minimal and the risk from metals is considered acceptable. Based on ecological risk screening, it was concluded that PAHs do not pose risk to ecological receptors. However, significant risk to terrestrial

receptors exists from metals in soil. Lead was determined to be the primary contributor to risk at this site.

In 2001, Bechtel National, Inc., prepared an Engineering Evaluation/Cost Analysis (EE/CA) (Attachment B) to address lead-impacted soil at IR Site 73. The EE/CA, finalized in March 2002, was developed to identify and analyze removal action alternatives to reduce the risk to ecological receptors at IR Site 73.

2. PHYSICAL LOCATION

NAVWPNSTA Seal Beach is approximately 26 miles south of the city of Los Angeles. It consists of about 5,000 acres of land along the Pacific Coast within the city of Seal Beach in Orange County, California. The cities that surround NAVWPNSTA Seal Beach include Seal Beach, Los Alamitos, Westminster, and Huntington Beach. NAVWPNSTA Seal Beach is bordered to the southwest by Anaheim Bay, to the north by Interstate 405 (San Diego Freeway), to the east by Bolsa Chica Street, to the west by Seal Beach Boulevard, and to the southeast by an Orange County flood control channel (Figures 1 through 3, Attachment C). Landing Hill, a low coastal hill, is located along the western edge of NAVWPNSTA Seal Beach. Adjacent to Landing Hill on the east is Sunset Gap, a wetlands composed of coastal salt marsh and tidal mudflats (Figure 4, Attachment C).

The primary mission of NAVWPNSTA Seal Beach is to provide material and technical support for ammunition, assigned weapons, and weapon systems; maintain and operate an explosive ordnance out-loading facility; and perform additional tasks as directed by Commander Navy Region Southwest and its major claimant, Commander-In-Chief U.S. Pacific Fleet. Open space and buildings, magazines (storage areas for explosives or ordnance), and other structures occupy 357 acres of NAVWPNSTA Seal Beach.

The climate is characterized as "marine-influenced southern California coast." It is mild and stable because of the relatively warm water of the Pacific Ocean. Prevailing winds are from the west (averaging 3.8 miles per hour) but, occasionally, strong, dry winds blow from the mountains to the northeast. These winds, known as the "Santa Anas," occur in the fall, winter, and early spring. Average annual precipitation in the area is 12.5 inches, of which more than 90 percent occurs between November and April (SWDIV 1996).

The ecological habitats at NAVWPNSTA Seal Beach include open water, tidal channels, mudflats, and salt marshes. More than 900 acres of NAVWPNSTA Seal Beach have been designated as the Seal Beach National Wildlife Refuge (NWR). The NWR consists of a 700-acre tidal salt marsh and 200 upland acres. The main purpose of the NWR is to preserve and enhance the area's living resources. Recreational activities (including beach swimming, picnicking, fishing, and other activities) are authorized for military and civilian personnel (retired

military). IR Site 73's boundary is approximately 1,700 feet from the NWR. Lead-impacted soil at IR Site 73 is not expected to impact ecological receptors in the NWR.

Because of the distance of IR Site 73 to the nearest surface water body and the depth to the groundwater table, exposure to aquatic receptors was not considered at this site.

3. SITE CHARACTERISTICS

NAVWPNSTA Seal Beach is an operational facility owned and operated by the DON. Land use within the base is generally classified as a "military operating area" for both current and future use. Housing and personnel support, public works, and supply facilities are located in the southwestern corner of NAVWPNSTA Seal Beach.

The predominant land use in the areas surrounding IR Site 73 is medium-density residential development, with scattered parcels of high-density residential, commercial, industrial, and recreational development (JEG 1995). Future land uses for the adjacent cities include commercial/industrial, limited residential, and open space uses.

The proposed removal action will be the first remediation activity to take place at IR Site 73.

4. RELEASE OR THREATENED RELEASE OF A HAZARDOUS SUBSTANCE, OR POLLUTANT OR CONTAMINANT INTO THE ENVIRONMENT

The water tower at IR Site 73 was constructed in about 1944. Since then, the tower has been periodically sandblasted and repainted an unknown number of times. Some of these sandblasting/repainting activities resulted in releases of sandblasted paint chips to the area surrounding the water tower.

Analytical results of samples collected from the water tower area during the FSI Phase II indicated that SVOCs (including PAHs and phthalates) and metals were present at concentrations above the reporting limits. Summary statistics for the analytical results are presented in Table 2-1 of the EE/CA (Attachment B). Evaluation of the analytical results indicated that elevated lead concentrations in soil presented an unacceptable risk to ecological receptors. (Section 2.5 of the EE/CA [Attachment B] provides a more detailed explanation of the risk screening results.)

Routes of Exposure

Evaluation of potential routes of exposure focused on potential exposure pathways for ecological receptors as identified in the FSI Phase II and in the refined ecological risk assessment in the EE/CA (Attachment B). The receptors

of potential concern are the following terrestrial ecological receptors that live on or otherwise use IR Site 73.

- The mourning dove spends a high percentage of time in the study area; has a small body size; nests in the area; and ingests soil, grit, and seeds that have been in contact with contaminated soil (CH2M Hill 2000).
- The California ground squirrel has been observed in terrestrial habitats throughout NAVWPNSTA Seal Beach. It spends a high percentage of time in the study area and its burrowing and foraging activities increase its chances of exposure from soilborne chemicals of potential concern (COPCs) (CH2M Hill 2000).
- The American kestrel has also been observed in terrestrial habitats throughout NAVWPNSTA Seal Beach. Because the American kestrel is considered high on the food chain, its exposure potential to COPCs that biomagnify is increased through ingestion (CH2M Hill 2000).
- The American robin represents several species of birds that feed on insects, earthworms, and other invertebrates; spend a high percentage of time in the study area; have a small body size; nest in the area; and ingest soil, grit, and food items that have been in contact with contaminated soil.
- The raccoon is a midsize (larger than a rodent) mammalian omnivore present at the site; its foraging activities increase its chances of exposure from soilborne COPCs.
- The red fox is a midsize (larger than a rodent) mammalian carnivore. Its foraging activities and high position on the food chain increase its chances of exposure from soilborne COPCs, particularly bioaccumulative compounds. Although the red fox was relocated to an off-site location several years ago (so it could not disturb least tern nests), it is considered representative of mammalian carnivore species.

None of these potential receptors are state or federally listed as endangered, threatened, or special status.

5. NATIONAL PRIORITIES LIST STATUS

The National Priorities List (NPL) was developed by U.S. EPA and lists hazardous waste sites nationwide that pose the greatest risk to public health and, thus, warrant priority responses under CERCLA. NAVWPNSTA Seal Beach is not on the NPL, nor is it proposed to be added to the NPL.

Because IR Site 73 is included in the DoD IRP at NAVWPNSTA Seal Beach, it is being investigated in accordance with CERCLA and other relevant state, federal, and local regulations.

The IRP forms the basis for investigation and cleanup of DoD bases. It is designed to identify, assess, characterize, and clean up or control contamination from past hazardous waste disposal operations and hazardous material spills.

6. MAPS, PICTURES, AND OTHER GRAPHIC REPRESENTATIONS

The following are provided as Attachment C:

- Figure 1 – Regional Map
- Figure 2 – Site Location Map
- Figure 3 – Site Map
- Figure 4 – Surface Features
- Figure 5 – Lead Concentrations in Soil at 0.5 – 1.0 ft bgs
- Figure 6 – Lead Concentrations in Soil at 2.0 – 2.5 ft bgs
- Table 1 – Evaluation of Technologies and Process Options
- Table 2 – Cost Estimate for Alternative 2, Excavation With Off-Site Disposal
- Table 3 – Total Costs of Removal Action Alternatives for IR Site 73
- Table 4 – Ranking of Alternatives
- Table 5 – Potential Hazardous Waste Determination for Analytes Reported in Soil Samples Collected From IR Site 73
- Table 6 – Potential Federal Chemical-Specific ARARs by Medium
- Table 7 – Potential Federal Location-Specific ARARs
- Table 8 – Potential State Location-Specific ARARs
- Table 9 – Potential Federal Action-Specific ARARs
- Table 10 – Potential State Action-Specific ARARs

B. Other Actions to Date

Previous and current actions at IR Site 73 are discussed below.

1. PREVIOUS ACTIONS

Previous actions conducted at IR Site 73 are discussed in Section II(A)(1).

2. CURRENT ACTIONS

No government or private actions are currently being conducted at IR Site 73.

As the lead federal agency, the DON has initiated the following community relations activities at NAVWPNSTA Seal Beach:

- public meetings and technical workshops
- development of a restoration advisory board
- preparation of fact sheets and brochures describing the IR process
- maintenance of information repositories accessible to the public

To gain a more thorough understanding of the activities associated with this NTCRA, the public is encouraged to review documents contained in the information repositories, located at NAVWPNSTA Seal Beach, Building 110; and at the Seal Beach Public Library, Mary Wilson Branch, 707 Electric Avenue, Seal Beach, California 90740, telephone (562) 431-3584. The library hours (as of July 2002) are:

Mon and Tues – 12 p.m. to 8 p.m.

Wed and Thurs – 10 a.m. to 6 p.m.

Sat – 10 a.m. to 5 p.m.

Fri and Sun – closed

The complete Administrative Record is located at 1220 Pacific Highway, San Diego, California, and is maintained by Ms. Diane Silva, Southwest Division Naval Facilities Engineering Command Administrative Record Coordinator, (619) 532-3676. Attachment D contains a portion of the Administrative Record Index and lists documents relevant to IR Site 73.

Public notices to inform the public of removal action documents available for review are included as Attachment E.

C. State and Local Authorities' Role

State and local actions to date and potential for their continued response are discussed below.

1. STATE AND LOCAL ACTIONS TO DATE

Federal Exec. Order No. 12580 delegates to DoD the President of the United States' authority to undertake CERCLA response actions. Congress further outlined this authority in its Defense Environmental Restoration Program (DERP) Amendments, which can be found at 10 U.S.C. §§ 2701–2705. Both CERCLA § 120(f) and 10 U.S.C. § 2705 require DON facilities to ensure that state and local officials be given the timely opportunity to review and comment on DON response actions. CERCLA § 120 further requires the DON to apply state removal and remedial action regulatory requirements at its facilities.

Accordingly, the following state agencies have provided technical advice, oversight, and approval during previous activities conducted at IR Site 73, which include the FSI Phase II and EE/CA phases of the IRP:

- DTSC
- RWQCB Santa Ana Region

DTSC will prepare a California Environmental Quality Act document that will discuss the impact of the IR Site 73 NTCRA on the environment. The preparation of this document will include a 30-day public comment period, which satisfies the requirements as set forth in the Cal. Health & Safety Code for remedial action plans.

2. POTENTIAL FOR CONTINUED STATE AND LOCAL RESPONSE

The DTSC and RWQCB currently provide technical oversight to the IRP, assist at monthly program management meetings for NAVWPNSTA Seal Beach, and review documents produced under the IRP for this removal action. It is anticipated that technical oversight will continue throughout the IR process and that the DON's DERP account funds will continue to be the exclusive source of funding for this program.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

In accordance with the NCP, the following factors must be considered in determining the appropriateness of a removal action (40 C.F.R. § 300.415[b][2]):

- (i) actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants
- (ii) actual or potential contamination of drinking water supplies or sensitive ecosystems
- (iii) hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers that may pose a threat of release
- (iv) high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate
- (v) weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released
- (vi) threat of fire or explosion
- (vii) the availability of other appropriate federal or state response mechanisms to respond to the release
- (viii) other situations or factors that may pose threats to public health or welfare or the environment

A. Threats to Public Health or Welfare

Of the above factors, the following factor applies to the current conditions at IR Site 73:

- (i) actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants

This factor has been identified as the primary threat for public health and/or welfare and/or the environment at IR Site 73. This section describes the potential threats posed to human and/or ecological receptors by exposure to lead-impacted soil at IR Site 73 as determined by the risk assessment.

During the human-health risk screening performed as part of the FSI Phase II at IR Site 73, soil analytical data were compared with stationwide ULBVs and residential preliminary remediation goals (PRGs). The excess lifetime cancer risk (ELCR) and noncancer hazard quotient (HQ) for each COPC were then estimated. The 95 percent upper confidence limit of the arithmetic mean concentration of metals in soil at the site yielded an ELCR of 2×10^{-9} and a noncancer hazard index (HI) of 0.7. The ELCR associated with SVOCs in soil was 1×10^{-5} , primarily as a result of the PAH benzo(a)pyrene. The noncancer HI was less than 0.1 for SVOCs at IR Site 73. The recommendation for a removal action was not based on this low risk to human health, but on the risk to ecological receptors.

B. Threats to the Environment

As part of the EE/CA, an ecological risk assessment was performed (Attachment B, Appendix A). The results of the ecological risk assessment indicated the potential for impaired growth and reproduction of wildlife receptors representative of the wildlife that may occur at the site. The ecological risk was attributed to soil lead concentrations (maximum 1,360 milligrams per kilogram [mg/kg]). The HQs did not exceed 1 for mourning dove, red fox, and American kestrel. The HQs exceeded 1 for American robin, raccoon, and California ground squirrel. Special status species, such as state and federally listed rare, threatened, and endangered species, are not expected to occur at the site. Ecological habitat value of the site is not high because of significant human activity and minimal vegetation due to regular grass mowing.

The American robin was considered the most sensitive of the representative receptors based on exposures from incidental soil ingestion and contaminated food ingestion. To reduce the potential for adverse effects to the growth and reproduction of wildlife receptors represented by the American robin (HQ=1), a cleanup goal of 317 mg/kg is recommended for the soil lead concentration.

IV. ENDANGERMENT DETERMINATION

Risk assessment results documented in Section III(B) and presented in the EE/CA (Attachment B), and pertinent information contained in the Administrative Record confirm that current conditions at IR Site 73 present a threat to ecological receptors and warrant the implementation of an NTCRA.

Actual or potential releases of hazardous substances from the site, if not addressed by implementing the removal action selected in this Action Memorandum, may present future endangerment to ecological receptors and the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

In the EE/CA, the following two removal action alternatives were considered for evaluation:

- Alternative 1 – no action
- Alternative 2 – excavation with off-site disposal
 - Option A, mechanical excavation with monitoring by an archaeological monitor and a Native American monitor
 - Option B, data recovery by a trained archaeologist followed by mechanical excavation with monitoring by an archaeological monitor and a Native American monitor

The no action alternative was evaluated for comparison purposes only. Alternative 2, Option B, was considered to be the most effective alternative because the lead-contaminated soil with concentrations above the cleanup goal will be removed from IR Site 73 and data recovery will be performed by a trained archaeologist to help preserve the understanding of cultural resources at the site. Alternative 2, Option A, also results in the removal of the lead-contaminated soil with concentrations above the cleanup goal. However, Option A does not include data recovery and therefore is not considered as effective as Option B.

A. Proposed Action

On the basis of a comparative analysis of removal action alternatives in the EE/CA (Attachment B), Alternative 2, Option B, was chosen as the recommended alternative. This alternative is recommended because it greatly reduces risks to ecological receptors and the environment by removing soil contaminated with lead concentrations above the cleanup goal and minimizes the impact to cultural resources. This alternative meets the removal action objectives (RAOs), complies with applicable or relevant and appropriate requirements (ARARs) and other guidance, and is technically and administratively feasible. In addition, the materials to implement this alternative are commercially available. The cost for this alternative is comparable to similar removal actions previously conducted at this facility, and under this alternative there will be no unforeseen future costs. The fact that this site is highly accessible as well as visible further supports selection of this alternative.

The removal action objectives for IR Site 73 are to 1) minimize further migration of lead contamination from sandblasted paint chips on the ground surface, 2) reduce the risk to ecological receptors from lead-impacted soil to acceptable

levels, and 3) minimize potential impact to cultural resources to the extent practicable.

Demolition of the water tower, with the exception of the footings, is planned prior to the initiation of the removal action. Removal of the water tower footings, down to the depth of the excavation, will be performed during the removal action. Although the land use is not expected to change following implementation of this alternative, it is difficult to predict the future land use of this site. NAVWPNSTA Seal Beach is not slated for either closure or changes in land use. However, should the land use change, the Navy will use the Base Master Plan to track and control the changes and determine the need for reassessment of human-health and/or ecological risk. In addition, the National Environmental Policy Act (NEPA) review process is in place to determine whether a site is adequate to be used for any purpose other than its current use. Should the planned usage of IR Site 73 change in the future, analysis and documentation of historical land use and cleanup activities will be conducted in accordance with the NEPA provisions.

1. PROPOSED ACTION DESCRIPTION

Alternative 2, Option B, will implement a remedy of excavation and off-site disposal. The alternative will include data recovery by a trained archaeologist prior to excavation. All excavation activities will be conducted under the surveillance of an archaeological monitor and a Native American monitor.

a) *Excavation*

Soil with lead concentrations above the proposed cleanup goal will be excavated. Figures 5 and 6 show the approximate limits of the excavation areas, delineated by the 300-mg/kg isoconcentration lines (approximating the lead cleanup goal of 317 mg/kg). Contaminated soil will be excavated to 1.5 feet below ground surface (bgs) in three areas (Figure 5). Excavation will continue to a depth of approximately 3 feet bgs in areas where necessary (Figure 6). Based on current analytical data and interpretation of the extent of soil contamination, approximately 400 bcy (in-place soil volume) will be excavated.

The first phase of excavation will be data recovery conducted by a trained archaeologist. Prior to starting field activities, the Navy will consult with the State Historic Preservation Officer (SHPO).

The area and depth of the data recovery excavation will be determined during implementation of the removal action. Following the data recovery excavation, mechanical excavation methods, under the close watch of an archaeological monitor and a Native American monitor, will be used to remove the remaining soil.

The aboveground portion of the water tower is scheduled to be removed prior to implementation of this removal action, but the water tower footings will not be removed at that time. The top 1.5 to 3 feet of the footings will be removed during field activities (using jackhammer or other appropriate methods) to match the depth of the excavation. Although not expected, dust monitoring will be initiated if considered necessary. In addition, it is not anticipated that excavation activities will be required in close proximity to Building 206. If this should change, provisions will have to be made to ensure that this building's foundation is not compromised.

b) Confirmation Soil Sampling

Confirmation sampling will be performed to establish concentrations of lead for soil remaining in place after excavation has been completed. The field sampling design, including the proposed locations of confirmation sampling, will be included in the project work plan prepared by the RAC. Final confirmation sampling locations will be recorded using surveying techniques. For cost-estimating purposes, it was assumed that one confirmation sample will be collected for every 10- by 10-foot area. Approximately 63 confirmation samples will be collected from locations around the base and perimeter of the excavation. It is assumed that the confirmation samples will be analyzed for total lead using U.S. EPA Method 6010B.

Analytical results of the confirmation sampling will be compared to the proposed cleanup goal. On the basis of this comparison, a decision to terminate excavation, if feasible, will be made. If the decision were made to continue excavation, additional confirmation sampling will be required.

The RAC may choose to collect samples prior to excavation. This alternate approach may eliminate the potential for multiple excavation/confirmation sampling rounds, but could require more sampling than the approach discussed above.

c) Backfilling and Revegetation

When the results of the confirmation sampling analyses indicate that the soil containing lead at concentrations exceeding the proposed cleanup goal has been removed, the excavation will be backfilled with clean fill material, compacted to original grade, and revegetated with sod.

d) Soil Profiling and Disposal

Excavated soil will be stockpiled on and covered with plastic (minimum 20-millimeter thickness) until it can be sampled and classified for appropriate disposal. Approximately every 125 loose cubic yards (lcy [the 25 percent swell factor of the soil once it is removed from the excavation]) of stockpiled soil will be analyzed for total metals and leaching potential of metals using the toxicity characteristic leaching procedure (TCLP) (U.S. EPA Method 1311). This soil

may also be analyzed for concentration values for contaminant soluble threshold limit using California Waste Extraction Test (WET) methods. Following profiling, soil will be transported to and disposed at a U.S. EPA-certified disposal facility.

2. CONTRIBUTION TO REMEDIAL PERFORMANCE

The proposed removal action will eliminate immediate and potential exposure risks to ecological receptors and the environment by excavating lead-impacted soil and properly disposing it in an appropriate landfill facility.

3. DESCRIPTIONS OF ALTERNATIVE TECHNOLOGIES

The evaluation of removal alternatives in the EE/CA (Attachment B) describes two alternatives that were considered before the proposed action was selected. On the basis of the evaluation of the nature and extent of contamination and the definition of the RAOs presented in Section 3 of the EE/CA (Attachment B), two removal action alternatives were identified for consideration and subjected to a detailed screening analysis. These alternatives represent a range of options that address site-related conditions (e.g., the potential presence of cultural resources) and incorporate technologies that are applicable to the lead-impacted soil found at IR Site 73. The following two alternatives were identified and evaluated:

- Alternative 1 – no action
- Alternative 2 – excavation with off-site disposal
 - Option A, mechanical excavation with monitoring by an archaeological monitor and a Native American monitor
 - Option B, data recovery by a trained archaeologist followed by mechanical excavation with monitoring by an archaeological monitor and a Native American monitor

Alternative 1 – No Action

This alternative does not include additional characterization of soil or further action to remove contaminated soil or reduce risk posed by contaminated soil at the site.

Effectiveness

This alternative will not reduce the risk of exposure to contaminated soil at the site and will not meet the RAOs. Toxicity, mobility, and volume of lead will not be reduced. The no action alternative does not activate ARARs.

Implementability

This alternative is technically feasible because it requires no action. However, the no action alternative is not expected to be acceptable to the state or to the public.

Cost

No costs are associated with this alternative.

Alternative 2 – Excavation With Off-Site Disposal

Alternative 2 involves the excavation of soil containing lead at concentrations above the proposed cleanup goal of 317 mg/kg. Alternative 2 consists of two excavation options. Option A consists of mechanical excavation with monitoring by an archaeological monitor and a Native American monitor, and Option B includes data recovery conducted by a trained archaeologist followed by mechanical excavation with monitoring by an archaeological monitor and a Native American monitor.

Under this alternative, the excavated soil will be transported to and disposed at an appropriate, permitted landfill. The excavation will be backfilled with clean, imported soil and covered with sod to restore the site to original conditions.

Effectiveness

Alternative 2 is considered reliable and effective over the long term. This alternative will comply with all identified ARARs. All lead-impacted soil above the cleanup goal will be removed from the area. This will reduce the potential risk to ecological receptors from lead in soil at the site. By including data recovery by a trained archaeologist in Option B, this option will help contribute to the scientific understanding and enhance public appreciation and awareness of the cultural resources at the site. Although implementation of Alternative 2 will temporarily disrupt the local environment, the site will be restored to its original state in a relatively short period of time by placing clean backfill in the excavation and revegetating the area with sod.

Alternative 2 requires disposal of the excavated soil. Waste handling and landfilling technology is well developed. However, off-site disposal of soil classified as hazardous waste cannot be considered permanent remediation of the contaminated material because the excavated soil will not be treated to reduce lead concentrations. There will be some degree of uncertainty regarding potential future liability if the excavated soil were to be disposed of as hazardous waste at an off-site facility.

Short-term risks of this alternative include risks to workers, nearby populations, and the environment.

Implementability

This alternative can be readily implemented in areas where no surface structures are located. Alternative 2 is technically and administratively feasible and does not require special techniques, material, permits, or labor for implementation. While it is likely that Alternative 2, Option A, will be unacceptable to state regulatory agencies and the local community, Alternative 2, Option B, is expected to be acceptable to both these groups.

Cost

The total cost estimate for Alternative 2 is \$137,800 (Option A) and \$382,000 (Option B), based on an assumed project start date of July 2002 and project duration of approximately 1 month. The net present value, based on January 2001 dollars, is \$128,800 (Option A) and \$357,000 (Option B). Table 2 describes the major cost items and the estimated costs. Appendix C of the EE/CA (Attachment B) contains supporting cost information.

Comparative Analysis of Alternatives

Table 4 (Attachment C) rates the effectiveness, implementability, and cost for each alternative and provides a total ranking. For each alternative, ratings of 1 to 4 (1 being least effective/implementable or highest cost, and 4 being most effective/implementable or lowest cost) were used. These rating numbers are relative to one another and take into consideration the alternatives' comparative analysis. Total rankings are subjective and have been provided for comparison only.

4. ENGINEERING EVALUATION/COST ANALYSIS AND ACTION MEMORANDUM

An EE/CA (Attachment B) was developed for this NTCRA that identified and compared cleanup alternatives to address the risk to ecological receptors from lead-impacted soil. The draft EE/CA was released for public review and comment during the period from 29 November through 29 December 2001.

This Action Memorandum documents the DON's decision to conduct the removal action and presents the selected removal action alternative.

Following the public comment period, the comments were evaluated and a responsiveness summary was prepared describing what actions would be taken with regard to each comment. Regulatory agency comments and the DON's responses to those comments on the draft EE/CA and draft Action Memorandum are included as Appendix D of the final EE/CA and Attachment F of this final Action Memorandum, respectively. The EE/CA, Action Memorandum, and other related project documents are maintained in the Administrative Record, which is open to the public.

5. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Section 300.415(j) of the NCP provides that removal actions must attain ARARs to the extent practicable, considering the exigencies of the situation.

Section 300.5 of the NCP defines "applicable requirements" as cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws that specifically address a hazardous substance, pollutant, or contaminant, removal action, location, or other circumstances at a CERCLA site.

Section 300.5 of the NCP further defines "relevant and appropriate requirements" as cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal or state environmental or facility siting laws. While not applicable to a hazardous substance, pollutant, or contaminant, removal action, location, or other circumstances at a CERCLA site, these laws address problems or situations sufficiently similar to those encountered at a CERCLA site and are well suited to the particular site.

Because CERCLA on-site response actions do not require permitting, only substantive requirements are considered possible ARARs. Administrative requirements such as approval of or consultation with administrative bodies, issuance of permits, documentation, reporting, record keeping, and enforcement are not ARARs for CERCLA actions confined to the site.

Only those promulgated state standards that are identified by a state in a timely manner and are more stringent than federal requirements may be applicable or relevant and appropriate.

There are three types of ARARs. The first includes chemical-specific requirements. This type of ARAR sets limits on the concentration of specific hazardous substances, contaminants, and pollutants in the environment. Examples of this type of ARAR are ambient water quality criteria and drinking water standards. The second type of ARAR includes location-specific requirements that restrict certain types of activity based on site characteristics. These include restrictions on activity in wetlands, floodplains, and historic sites. The third type of ARAR includes action-specific requirements. These are technology-based restrictions that are triggered by the type of action under consideration. Examples of action-specific ARARs are Resource Conservation and Recovery Act (RCRA) regulations for waste treatment, storage, and disposal.

ARARs must be identified on a site-specific basis from information about specific chemicals at the site, specific features of the site location, and actions that are being considered as removal actions.

Identification of ARARs is a site-specific determination that involves a two-part analysis: a determination of whether a given requirement is applicable and, if not applicable, whether it is relevant and appropriate. A requirement is deemed

applicable if the specific terms of the law or regulation directly address the COPC, removal action, or place involved at the site. If the jurisdictional prerequisites of the law or regulation are not met, a legal requirement may, nonetheless, be relevant and appropriate if the site circumstances are sufficiently similar to circumstances in which the law otherwise applies and if it is well suited to the conditions of the site.

As the lead federal agency, the DON has the primary responsibility for the identification of federal ARARs for IR Site 73. As the lead state agency, DTSC has the responsibility for identifying state ARARs. The DON conducted the federal and state ARARs identification process, and the following is a summary discussion. A more detailed evaluation of ARARs is provided in the EE/CA (Attachment B) and in the ARARs summary tables (Tables 6 through 10 in Attachment C).

Many of the ARARs identified by the state agencies were not relevant to the activities planned for IR Site 73 and are not discussed in this document.

In general, the federal and state hazardous waste management regulations promulgated in the *California Code of Regulations* (Cal. Code Regs.) Title (tit.) 22 will be the controlling ARARs for the removal action at IR Site 73. These regulations characterize the hazardous nature of the excavated material, and they specify how it must be managed and disposed after excavation if it is hazardous. If the excavated soil is nonhazardous, the controlling ARARs for soil management will be the State Water Resources Control Board waste discharge to land requirements (Cal. Code Regs. tit. 23, Chapter 15). Additionally, various rules and regulations of the South Coast Air Quality Management District (SCAQMD), promulgated pursuant to the Clean Air Act, are ARARs for soil excavation activities.

a) Chemical-Specific ARARs

The proposed removal action involves lead-impacted soil. Summaries of the federal and state chemical-specific ARARs for soil are discussed below.

(1) Federal Chemical-Specific ARARs

At IR Site 73, the excavation of lead-impacted soil alternative will produce solid wastes—the excavated soil. Therefore, certain substantive requirements of RCRA are potential ARARs for handling the waste material from IR Site 73.

RCRA Hazardous Waste Determination. The federal RCRA requirements at 40 C.F.R. pt. 261 do not apply in California because the state RCRA program is authorized. The authorized state RCRA requirements are therefore considered potential federal ARARs (see Attachment B, Section B1.3.1). The applicability of RCRA requirements depends on whether the waste is a RCRA hazardous waste; whether the waste was initially treated, stored, or disposed after the effective date of the particular RCRA requirement; and whether the activity at the site constitutes

treatment, storage, or disposal as defined by RCRA. However, RCRA requirements may be relevant and appropriate even if they are not applicable. Examples include activities that are similar to the definition of RCRA treatment, storage, or disposal for waste that is similar to RCRA hazardous waste.

The determination of whether a waste is a RCRA hazardous waste can be made by comparing the site waste to the definition of RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potentially applicable ARARs because they define RCRA hazardous waste. A waste can meet the definition of hazardous waste if it has the toxicity characteristic of hazardous waste. This determination is made by using the TCLP. The maximum concentrations allowable for the TCLP listed in § 66261.24(a)(1)(B) are potential federal ARARs for determining whether the site has hazardous waste. If the site waste has concentrations exceeding these values, it is determined to be a characteristic RCRA hazardous waste. Based on the evaluation in Section B1.4.1, the soil subject to removal is considered to be a potential RCRA hazardous waste and will be treated as such during on-site activities.

(2) *State Chemical-Specific ARARs*

RCRA Requirements. State RCRA requirements included within the U.S. EPA-authorized RCRA program for California are considered to be potential federal ARARs and are discussed above. When state regulations are either broader in scope or more stringent than their federal counterparts, they are considered potential state ARARs. State requirements such as the non-RCRA, state-regulated hazardous waste requirements may be potential state ARARs because they are not within the scope of the federal ARARs (57 Federal Register [Fed. Reg.] 60848). The Cal. Code Regs. tit. 22, div. 4.5 requirements that are part of the state-approved RCRA program will be potential state ARARs for non-RCRA, state-regulated hazardous wastes.

The site waste characteristics need to be compared to the definition of non-RCRA, state-regulated hazardous waste. The non-RCRA, state-regulated waste definition requirements at Cal. Code Regs. tit. 22, § 66261.24(a)(2) are potentially applicable state ARARs for determining whether other RCRA requirements are potential state ARARs. Table 5 lists the total threshold limit concentrations (TTLCs), the soluble threshold limit concentrations (STLCs), and the TCLP for those chemicals identified in the Cal. Code Regs. The site waste may be compared to these thresholds to determine whether it meets the characteristics for a non-RCRA, state-regulated hazardous waste. However, based on the evaluation in Section B1.4.1 of Attachment B, the soil subject to removal will be treated as potential RCRA hazardous waste and, as a result, the state RCRA requirements are not applicable for on-site activities.

b) Location-Specific ARARs

Cultural and other natural resources are the resource categories relating to location-specific requirements potentially affected by the IR Site 73 removal action alternatives. The conclusions for ARARs pertaining to these resources are presented in the following sections.

(1) Federal Location-Specific ARARs

IR Site 73 falls within the boundaries of a known prehistoric archaeological site, CA-ORA-322/1,118. A determination was made that the site is eligible for inclusion in the National Register of Historic Places (Ogden 1997). The SHPO concurred with this conclusion in 1999 (Abeyta, pers. com. 1999). Accordingly, substantive portions of the National Historic Preservation Act (NHPA) have been identified as potentially applicable.

Previous studies have estimated that site CA-ORA-322/1,118 was occupied 4,000 years ago. A great deal of intrasite variability was observed from samples, though they were not large enough to determine whether the variability stemmed from different activities within a single occupation or separate occupations over a long period of time. When sampling was conducted within IR Site 73 in March 2000, shell (probably from a midden deposit) was noted in several auger sites. The bulk of shell observed was pecten and chione, though other species were occasionally noted. Because of this archaeological find, the substantive requirements of the Archaeological and Historic Preservation Act and the Archaeological Resources Protection Act have been identified as potentially applicable ARARs for the proposed removal action alternatives in this EE/CA.

(2) State Location-Specific ARARs

The reported terrestrial habitats at IR Site 73 are approximately 1,700 feet from the NWR, which is an aquatic habitat. There are no ARARs for the National Wildlife Refuge System Administration Act.

Proposed removal options for IR Site 73 do not entail the taking of animals or birds. However, the substantive requirements of California Fish and Game Code (Cal. Fish & Game Code) § 3005(a) regarding the taking of birds and mammals are potentially relevant and appropriate because the soil at the site may potentially present a risk to birds at the site that is similar to risk from a poisonous substance.

c) Action-Specific ARARs

Action-specific ARARs are technology-based restrictions that are triggered by the type of action under consideration (in this case, the excavation, stockpiling, and off-site disposal of the soil at IR Site 73).

(1) Federal Action-Specific ARARs

The key threshold question for soil ARARs is whether or not the waste generated during the removal action at IR Site 73 will be classified as a hazardous waste. The soil may be classified as federal hazardous waste as defined by RCRA and the state-authorized program, as non-RCRA state-regulated hazardous waste, or as nonhazardous waste. If the soil is determined to be hazardous waste, the appropriate requirements will apply. Comparing the site waste to the definition of RCRA hazardous waste can make the determination of whether a waste is a RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11, 66264.13(a) and (b), and 66262.34 are potentially applicable ARARs because they identify the RCRA hazardous waste requirements associated with generation and on-site accumulation.

For temporary storage of excavated soil, 40 C.F.R., § 264.554 requirements for staging piles were evaluated. The substantive requirements are potentially applicable ARARs for the temporary storage of excavated soil during characterization prior to off-site disposal.

SCAQMD Rule 403 applies to any source of dust or fumes, including lead-contaminated soil. The rule states that activities shall not cause or allow emissions of fugitive dust such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow levels of particulate matter less than 10 micrometers in diameter to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples. This rule is potentially applicable to removal activities at the site.

(2) State Action-Specific ARARs

Actions impacting birds or mammals are regulated in Cal. Fish & Game Code § 3005(a). These requirements prohibit the taking of birds and mammals, including the taking by poison. Though it is not anticipated that birds or mammals will be taken during removal activities at IR Site 73, the substantive provisions pertaining to the take of birds or mammals with a poisonous substance are potentially applicable.

6. PROJECT SCHEDULE

The removal action is expected to begin in late October 2002 and to be completed within approximately 1 month's time. The project schedule is included as Attachment G.

B. Estimated Costs

The DON has made a present-worth estimate of the removal action costs (Table 2). The estimated costs include the direct and indirect capital costs of

each alternative. The following items show some components of direct and indirect capital costs:

- direct capital costs
 - construction costs
 - equipment and material costs
 - transport and disposal costs
 - analytical costs
- Indirect costs
 - overhead
 - profit

The estimated costs for the proposed action (Alternative 2, Option B) are as follows:

Direct capital costs	
Mobilization/demobilization	\$2,300
Clear and grub (0.15 acre)	\$500
Mechanical excavation (340 bcy) and backfill (500 lcy)	\$8,200
Data recovery (60 bcy)	\$125,000
Load and transport excavated material to permitted landfill for disposal (500 lcy)	\$31,300
Confirmation soil sampling (one sample per 10- by 10-foot area + 20 percent for QC = 76 samples analyzed for total lead [U.S. EPA Method 7000 series])	\$4,900
Profile soil sampling for disposal (one composite sample per 125 lcy = 4 samples analyzed for total metals [U.S. EPA Method 6010B/7000 series], TCLP metals [U.S. EPA Method 1311 and U.S. EPA Method 6010B/7000 series], and STLC [California WET])	\$2,100
Revegetate with sod and repair sprinkler system (0.2 acre)	\$12,200
Professional labor (project oversight)	\$8,100
Total direct capital costs (based on January 2001 cost database)	\$194,600
Indirect costs (e.g., overhead, profit) (based on January 2001 cost database)	\$109,800
Contingency	\$61,000
Escalation	\$16,600
TOTAL COST (assumed start date of July 2002)	\$382,000
NET PRESENT VALUE (January 2001 dollars)	\$357,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

If action should be delayed or not taken, the potential for exposure of ecological receptor populations to lead-impacted soil at IR Site 73 will continue. Contamination could possibly spread from the site to nearby areas from wind erosion and surface-water runoff. This spread of contamination will result in an increased health risk to the exposed population. Delayed action will also increase health risks to the ecological receptor population through prolonged exposure to lead-impacted soil.

VII. PUBLIC INVOLVEMENT

The draft EE/CA was released for public review and comment during the period from 29 November through 29 December 2001. Following the public comment period, the comments were evaluated and a responsiveness summary was prepared describing what actions would be taken with regard to each comment. The EE/CA, Action Memorandum, and other related project documents are maintained in the Administrative Record, which is open to the public.

VIII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues with regard to the proposed removal action.

IX. RECOMMENDATIONS AND SIGNATURES

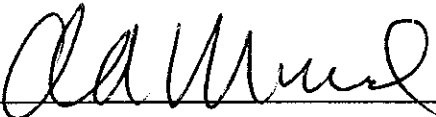
To date, the DON has not acquired evidence identifying other potentially responsible parties at this site. However, information acquired in the future, including but not limited to information acquired during the implementation of this removal action, or future response actions at the site could result in the identification of other potentially responsible parties.

This Action Memorandum was performed in accordance with current U.S. EPA and U.S. Navy guidance documents for NTCRA's under CERCLA. The purpose of this Action Memorandum was to identify and analyze removal actions to address a NTCRA for lead-impacted soil at IR Site 73 at NAVWPNSTA Seal Beach. Two alternatives were identified, evaluated for cost, and ranked:

- Alternative 1 – no action
- Alternative 2 – excavation with off-site disposal
 - Option A, mechanical excavation with monitoring by an archaeological monitor and a Native American monitor
 - Option B, data recovery by a trained archaeologist followed by mechanical excavation with monitoring by an archaeological monitor and a Native American monitor

Based on comparative analysis of the removal action alternatives completed in Section 5 of the EE/CA, the DON recommends Alternative 2, Option B, excavation (data recovery by a trained archaeologist followed by mechanical excavation with monitoring by an archeological monitor and a Native American monitor) with off-site disposal. This alternative best meets NCP criteria of overall protectiveness of human health; compliance with ARARs; long-term effectiveness; reduction of mobility, toxicity, or volume through treatment; short-term effectiveness; implementability; cost; and state and community acceptance.

This decision document represents the selected removal action for IR Site 73 (Water Tower Area), NAVWPNSTA Seal Beach, Orange County, California, developed in accordance with CERCLA as amended, and is consistent with the NCP. This decision is based on the Administrative Record for the site.

Signature:  Date: 12 JUL 02
R. A. Mirick
Captain, U.S. Navy
Commanding Officer

ATTACHMENT A

REFERENCES

REFERENCES

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ATTACHMENT B

ENGINEERING EVALUATION/COST ANALYSIS

Southwest Division
Naval Facilities Engineering Command
Contracts Department
1220 Pacific Highway
San Diego, California 92132-5190

Contract No. N68711-92-D-4670

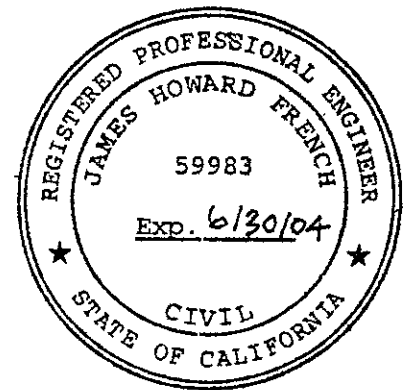
**COMPREHENSIVE LONG-TERM ENVIRONMENTAL
ACTION NAVY
CLEAN II**

**FINAL
ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR
INSTALLATION RESTORATION SITE 73
NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, ORANGE COUNTY, CALIFORNIA**

**CTO-0151/0349
March 2002**

Prepared by:

BECHTEL NATIONAL, INC.
1230 Columbia Street, Suite 400
San Diego, California 92101-8502



Signature: _____

James H. French
James H. French, PE, Civil Engineer No. C59983

Date: _____

3/28/02

Signature: _____

Robert A. Schilling
Robert A. Schilling, CTO Leader

Date: _____

3/28/02

SUMMARY

This Engineering Evaluation/Cost Analysis (EE/CA) has been prepared to support a non-time-critical removal action at Installation Restoration (IR) Program Site 73, Water Tower Area, Naval Weapons Station Seal Beach. This EE/CA was conducted in accordance with current United States Environmental Protection Agency and United States Department of the Navy (DON) guidance documents for a non-time-critical removal action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Chapter 6.8 of the *California Health and Safety Code* (Ca-HSC). This EE/CA describes site characteristics, removal action objectives, screening of technologies, removal action alternatives, and the recommended removal action alternative.

CERCLA, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (40 *Code of Federal Regulations* [C.F.R.] Part 300), and Ca-HSC § 25323 define removal actions as the cleanup or removal of released hazardous substances, actions to monitor the threat of release of hazardous substances, and actions to mitigate or prevent damage to public health or welfare or the environment. The NCP includes provisions for the “excavation, consolidation, or removal of highly contaminated soils from drainage or other areas – where such actions will reduce the spread of, or direct contact with, the contamination” and “containment, treatment, disposal, or incineration of hazardous materials—where needed to reduce the likelihood of human, animal, or food chain exposure” (40 C.F.R. 300.415[e][6 and 8]).

IR Site 73 consists of the area under and surrounding the station’s water tower. Since its construction around 1944, the water tower has been periodically sandblasted and painted. The water tower was last sandblasted and painted in approximately 1994. These activities resulted in the release of sandblasted paint chips to the landscaped area surrounding the water tower. The area is located east of Seal Beach Boulevard, south of the Main Gate, and west of Building 206. The site falls within a known archaeological site (CH2M Hill 2000).

The recommendation to undertake a removal action at IR Site 73 was based on the findings in the Focused Site Inspection Phase II Report (CH2M Hill 2000). Results of the human-health and ecological screening risk assessments indicated that significant risk to ecological receptors from metals in soil, primarily lead, exists at IR Site 73. Risk to human health was reported to be minimal from metals and low from semivolatile organic compounds (SVOCs), and there was reportedly no risk to ecological receptors from SVOCs.

Because the vertical extent of site contaminants in soil appears to be limited to the upper few feet below ground surface and groundwater is approximately 15 feet below ground surface (CH2M Hill 2000), groundwater is not impacted. This removal action focuses on soil.

This EE/CA identifies removal action alternatives to reduce the risk to ecological receptors from lead in soil at IR Site 73. After identification and screening of multiple removal technologies and process options, two alternatives were identified and considered:

- Alternative 1, no action
- Alternative 2, excavation with off-site disposal (Option A, mechanical excavation with monitoring by an archaeological monitor and a Native American monitor, and Option B, data recovery followed by mechanical excavation with monitoring by an archaeological monitor and a Native American monitor)

Based on this analysis, the DON recommends Alternative 2, Option B, data recovery followed by mechanical excavation with monitoring by an archaeological monitor and a Native American monitor with off-site disposal. This alternative best meets NCP criteria of overall protectiveness of human health; compliance with applicable or relevant and appropriate requirements; long-term effectiveness; reduction of mobility, toxicity, or volume through treatment; short-term effectiveness; implementability; cost; and state and community acceptance.

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ACRONYMS/ABBREVIATIONS

ARAR	applicable or relevant and appropriate requirement
bcy	bank cubic yard
bgs	below ground surface
BNI	Bechtel National, Inc.
Ca-HSC	California Health and Safety Code
Cal. Code Regs.	<i>California Code of Regulations</i>
Cal-EPA	California Environmental Protection Agency
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	<i>Code of Federal Regulations</i>
CLEAN	Comprehensive Long-Term Environmental Action Navy
COC	chemical of concern
COPC	chemical of potential concern
CRDL	contract required detection limit
CRQL	contract required quantitation limit
CTO	contract task order
DON	Department of the Navy
DOI	Department of Transportation
DTSC	(California Environmental Protection Agency) Department of Toxic Substances Control
EE/CA	engineering evaluation/cost analysis
EFA-West	Engineering Field Activity, West
ELCR	excess lifetime cancer risk
EO	executive order
°F	degrees Fahrenheit
FFSRA	Federal Facility Site Remediation Agreement
FSI	focused site inspection
HI	hazard index
HQ	hazard quotient
IDL	instrument detection limit
IR	Installation Restoration (Program)
JEG	Jacobs Engineering Group Inc.
lcy	loose cubic yards

Acronyms/Abbreviations

µg/kg	micrograms per kilogram
MDL	method detection limit
mg/kg	milligrams per kilogram
NAVWPNSTA	Naval Weapons Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEESA	Naval Energy and Environmental Support Activity
NEPA	National Environmental Policy Act
NISZ	Newport-Inglewood structural zone
NOAEL	no-observable-adverse-effect level
NWR	(Seal Beach) National Wildlife Refuge
O&M	operation and maintenance
OCEMA	Orange County Environmental Management Group
Ogden	Ogden Environmental and Energy Services Co., Inc.
OSHA	Occupational Safety and Health Administration
PAH	polynuclear aromatic hydrocarbon
PARCC	precision, accuracy, representativeness, completeness, and comparability
PE	professional engineer
PRG	preliminary remediation goal
QAPP	quality assurance project plan
QC	quality control
RAB	restoration advisory board
RAC	remedial action contractor
RACER	Remedial Action Cost Engineering and Requirements
RAO	removal action objective
RAP	remedial action plan
RAW	removal action work plan
RCRA	Resource Conservation and Recovery Act
RWQCB	(California) Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SCS	Soil Conservation Service
STLC	soluble threshold limit concentration
SVOC	semivolatile organic compound
SWDIV	Southwest Division Naval Facilities Engineering Command
TBC	to be considered
TCLP	toxicity characteristic leaching procedure

Acronyms/Abbreviations

UCL	upper confidence limit
ULBV	upper limit background value
USC	<i>United States Code</i>
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WET	(Cal-EPA) Waste Extraction Test

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Section 1 INTRODUCTION

This Engineering Evaluation/Cost Analysis (EE/CA) identifies and evaluates proposed removal action alternatives to address elevated lead concentrations in soil at Installation Restoration (IR) Program Site 73, Water Tower Area, Naval Weapons Station (NAVWPNSTA) Seal Beach, Orange County, California. Bechtel National, Inc. (BNI), prepared this document on behalf of the Department of the Navy (DON), Southwest Division Naval Facilities Engineering Command (SWDIV), under Contract Task Order 0151, issued under the Comprehensive Long-Term Environmental Action Navy (CLEAN) II Program, Contract No. N68711-92-D-4670.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) define removal actions as “the cleanup or removal of released hazardous substances from the environment, such actions as may necessarily be taken in the event of the threat of release of hazardous substance into the environment, such action as may be necessary to monitor, assess, and evaluate the release or threat of release of hazardous substances, the disposal or removal of material, or the taking of such other actions as may be necessary to prevent, minimize, or mitigate damage to the public health or welfare or to the environment, which may otherwise result from a release or threat of release.” The United States Environmental Protection Agency (U.S. EPA) has classified removal actions into three types—emergency, time-critical, and non-time-critical—based on the circumstances surrounding the release or threat of release. The removal action at IR Site 73, which the DON has determined to be appropriate, will be non-time-critical because the on-site activities will be initiated more than 6 months after the planning period begins (40 *Code of Federal Regulations* [C.F.R.] 300.415[b][4]).

Additionally, the *California Health and Safety Code* (Ca-HSC) specifies the preparation of necessary documentation, which depends upon the costs of the removal action. Ca-HSC requires development of either a remedial action plan (RAP), for removal actions that cost \$1 million or more, or a removal action work plan (RAW), for removal actions that cost less than \$1 million. Furthermore, Ca-HSC authorizes the California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) to waive the RAP requirements, in favor of a RAW or a RAP-equivalent document, for removal actions when an “Imminent and/or Substantial Endangerment” determination exists. DTSC may also waive the RAP requirements of Ca-HSC Section 25356.1(d)(1)–(6) if a RAP-equivalent document that meets the requirements of Ca-HSC Section 25356.1(h)(3) is prepared. The removal action for IR Site 73 will cost less than \$1 million; therefore, the requirements for a RAW apply.

IR Site 73 consists of the area under and surrounding the station’s water tower. It is predominantly flat, with a few mounded areas in the immediate vicinity of the water tower. The area is grass-covered and landscaped with scattered trees and shrubs. It is located east of Seal Beach Boulevard, south of the Main Gate, and west of Building 206 (CH2M Hill 2000). The site falls within a known archaeological site, which was reconfirmed in 1997 during an archaeological investigation (Ogden 1997). Since its construction around 1944, the water tower has been periodically sandblasted and repainted. The most recent sandblasting/painting activities took place around 1994. These activities resulted in the release of sandblasted paint chips to the area surrounding the water tower (CH2M Hill 2000).

Section 1 Introduction

During the focused site inspection (FSI) Phase II, soil samples were collected and analyzed for semivolatile organic compounds (SVOCs) and metals. Analytical results for these samples were used in human-health and ecological screening risk assessments. It was concluded in the FSI Phase II Report (CH2M Hill 2000) that there is low human-health risk from SVOCs and minimal human-health risk from metals, and no risk from SVOCs to ecological receptors. However, there is significant risk from metals to ecological receptors, lead being the primary risk driver. The report recommended a removal action to reduce the risk to ecological receptors from lead in soil. The report also recommended that the removal action balance the reduction of risk with the potential damage to known cultural resources on the site.

This EE/CA addresses the implementability, effectiveness, and cost for conducting a non-time-critical removal action and addresses applicable regulatory requirements. This EE/CA will be used as the basis for a future CERCLA removal action. The DON, with state regulatory oversight, is the lead agency for this non-time-critical removal action. As the lead agency, the DON has the final approval authority of the recommended alternative selected and overall public participation activities, with state of California concurrence. To implement this removal action, the DON is working in cooperation with the Cal-EPA DTSC and the California Regional Water Quality Control Board (RWQCB) Santa Ana Region.

An earlier draft of this EE/CA, issued in accordance with the Community Relations Plan prepared by NAVWPNSTA Seal Beach, facilitated public involvement in the decision-making process. The public was encouraged to review and comment on the proposed removal activities described in this EE/CA. There was a formal 30-day comment period at the time this EE/CA was made available to the public. The DON provided written responses to significant public comments provided during this period.

Based on this EE/CA, an action memorandum will be prepared that incorporates regulatory and significant public comments. The action memorandum will provide a written record of the decision to select an appropriate removal action. As the primary decision document, the action memorandum substantiates the need for a removal action, identifies the proposed action, and explains the rationale for the removal action selection. This EE/CA and the action memorandum will also satisfy Ca-HSC's requirements for a removal action.

NAVWPNSTA Seal Beach has formed a restoration advisory board (RAB) as part of the community outreach effort associated with the IR Program. The RAB meets regularly to review IR documents and discuss restoration issues. The RAB is made up of members of the community representing diverse interests, and meetings are open to the public. A community co-chair is selected by the RAB members and serves for a designated period.

To gain a more thorough understanding of the activities associated with this removal action and other NAVWPNSTA Seal Beach activities, the public can review documents contained in the information repositories. The information repositories are located at NAVWPNSTA Seal Beach, Building 110, and at the Seal Beach Public Library, Mary Wilson Branch, 707 Electric Avenue, Seal Beach, California 90740, telephone (562) 431-3584. The library hours (as of September 2001) are:

Section 1 Introduction

Monday and Tuesday:	12:00 Noon – 8:00 p.m.
Wednesday and Thursday:	10:00 a.m. – 6:00 p.m.
Saturday:	10:00 a.m. – 5:00 p.m.
Friday and Sunday:	Closed

Project documents are also available to the public through the Administrative Record. The complete Administrative Record is located at 1220 Pacific Highway, San Diego, California, and is maintained by Ms. Diane Silva, SWDIV Administrative Record Coordinator, telephone (619) 532-3676.

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Section 2

SITE CHARACTERIZATION

This section includes descriptions of the facility and background, previous investigations, nature and extent of contamination, and risk-screening evaluation. The information for this site characterization was taken from the FSI Phase II Report (CH2M Hill 2000), except where referenced otherwise.

2.1 FACILITY DESCRIPTION AND BACKGROUND

NAVWPNSTA Seal Beach, located about 30 miles south of the Los Angeles urban center, consists of about 5,000 acres of land near the Pacific Ocean (Figure 2-1). NAVWPNSTA Seal Beach is part of the Commander Navy Region Southwest, and its major claimant is the Commander-In-Chief Pacific Fleet. The station provides fleet combatants with ready-for-use ordnance. Because of its geographic location, the station serves as a supply point for the operating forces of the DON and United States Marine Corps in the southern California region.

2.1.1 Site Location

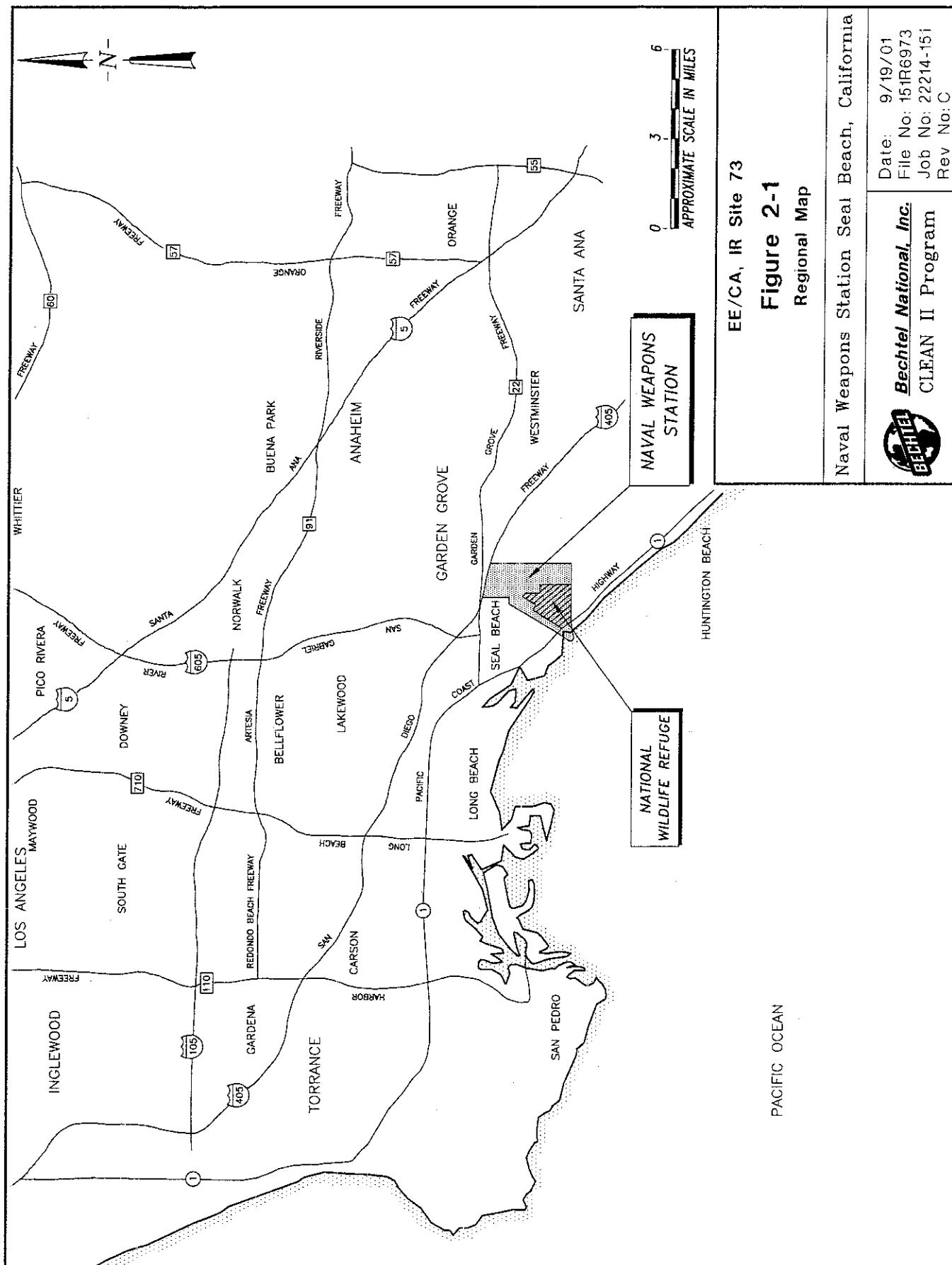
IR Site 73 consists of the area under and surrounding the station's water tower, located east of Seal Beach Boulevard, south of the Main Gate, and west of Building 206 (Figures 2-2 and 2-3). The site is within the southwestern quarter of Section 12, Township 5 South, Range 12 West, of San Bernardino Meridian. The latitude and longitude of IR Site 73 are 33°44'52" north and 118°05'20" west, respectively (USGS 1965).

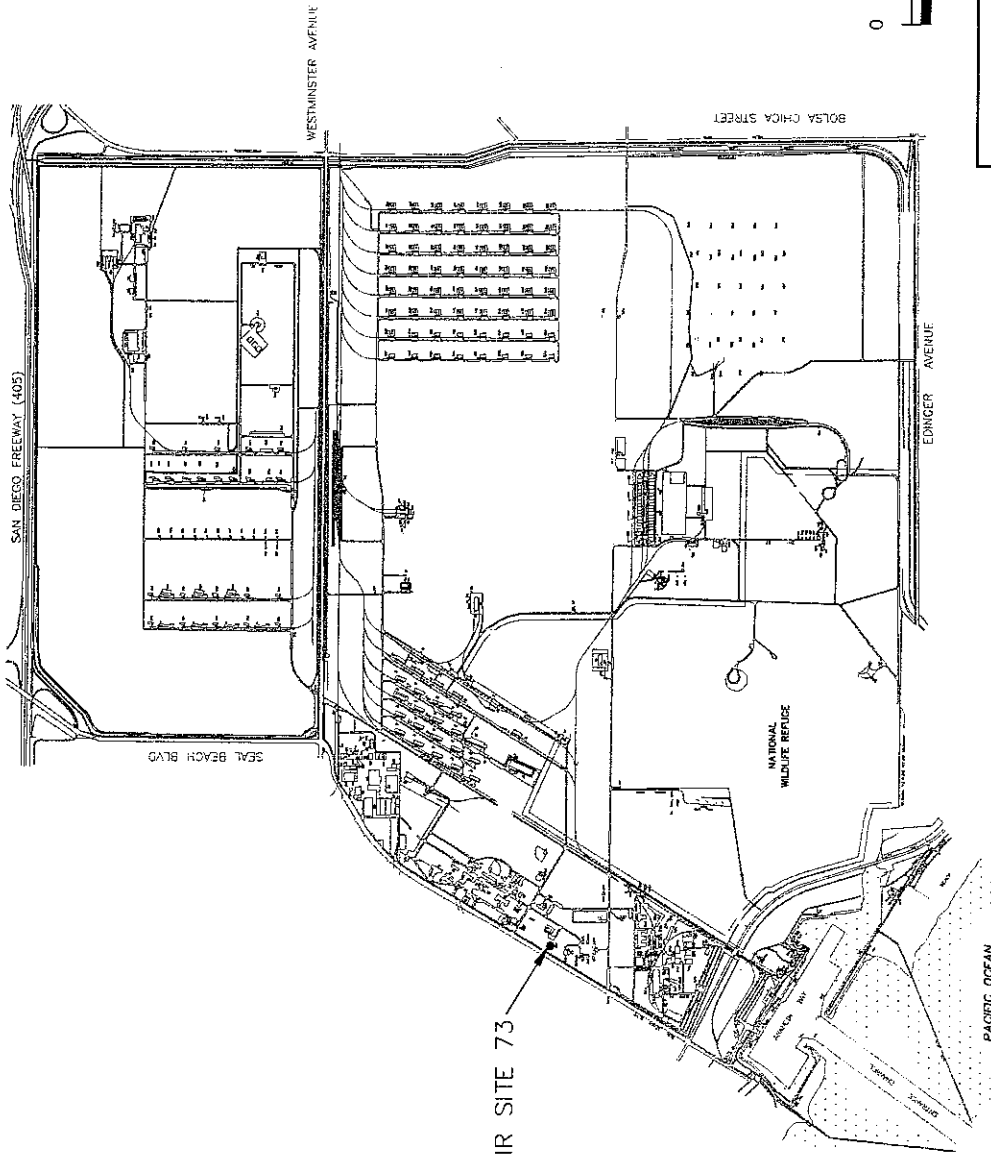
2.1.2 Type of Facility and Operational Status

Potable water is supplied to NAVWPNSTA Seal Beach by the city of Seal Beach. In the past, the potable water was stored in the water tower at IR Site 73, which contains a 103,000-gallon elevated tank. Since its construction around 1944, the external surface of the water tower has been periodically sandblasted and painted. The most recent sandblasting/painting activities took place around 1994. These activities resulted in the release of sandblasted paint chips to the area under and surrounding the water tower (CH2M Hill 2000). The aboveground portion of the water tower is scheduled to be removed. This will occur prior to implementation of this removal action. Otherwise, the land use at the site is not anticipated to change.

2.1.3 Topography/Structures

NAVWPNSTA Seal Beach is bordered on the southwest by Anaheim Bay and on the north, east, and west by highly developed urban communities. The most pronounced topographic feature on NAVWPNSTA Seal Beach is Landing Hill on the western portion of the facility. Landing Hill is uplifted along the Newport-Inglewood Fault Zone, which covers an area extending west of NAVWPNSTA Seal Beach across Seal Beach





EE/CA, IR Site 73

Figure 2-2

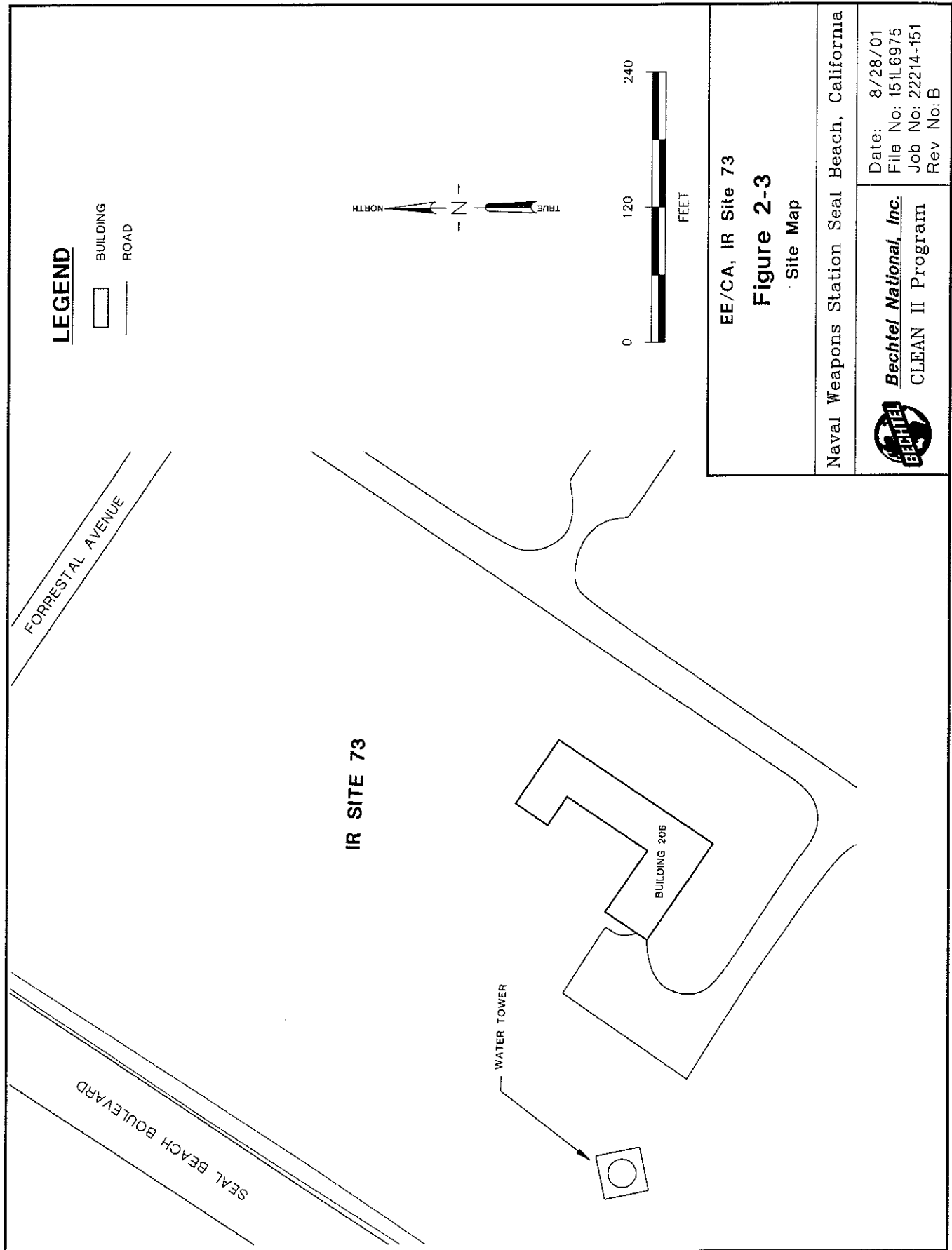
Site Location Map

Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
CLEAN II Program

Date: 8/28/01
File No: 151R6974
Job No: 22214-151
Rev No: B

REFERENCE: U.S. NAVAL WEAPONS STATION 1989.



Section 2 Site Characterization

Boulevard. Landing Hill reaches a maximum elevation of about 50 feet above mean sea level on NAVWPNSTA Seal Beach (JEG 1995).

The investigation area around IR Site 73 is a rectangular area approximately 6 acres under and surrounding the water tower. This area is predominantly flat with a few mounded areas in the immediate vicinity of the water tower. The site is a grassy area, landscaped with some scattered trees and shrubs. The site falls within a known archaeological site (CA-ORA-322/1,118) and, in 1997, an archaeological investigation documented by Ogden Environmental and Energy Services Co., Inc., reconfirmed the significance of the site's cultural resources (Ogden 1997).

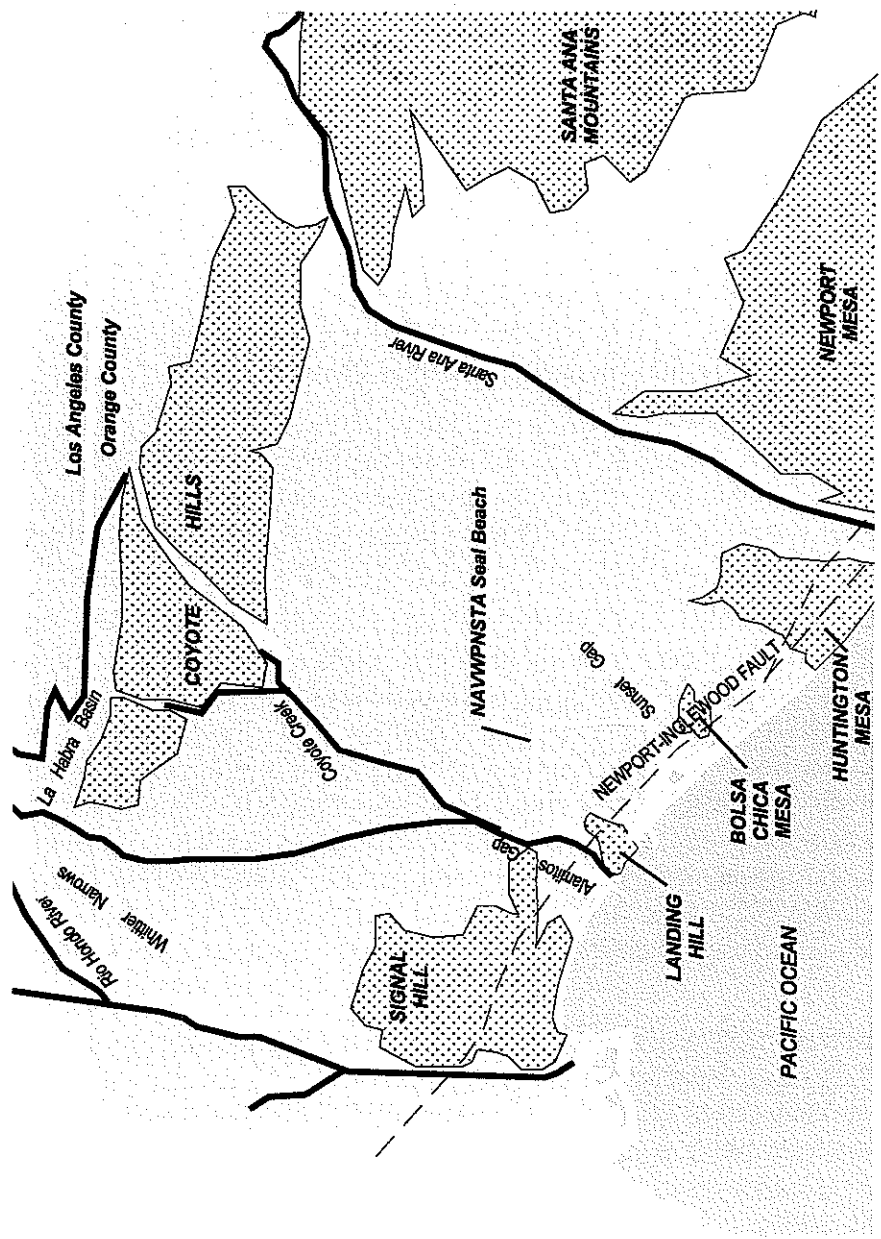
2.1.4 Geology/Soil Information

Most of NAVWPNSTA Seal Beach lies on flat, alluvial deposits that slope evenly from approximately 20 feet above mean sea level in the northeastern part of the facility to mean sea level in the tidal flats in the southwestern portion of the base.

Bedrock in the vicinity of the base is a thick sequence of Tertiary and Quaternary sedimentary rocks deposited on a basement of pre-Tertiary metamorphic and crystalline rocks. Tertiary rocks range in age from Oligocene to Pliocene and include sandstone, siltstone, shale and mudstone; they are almost exclusively of marine origin (CH2M Hill 2000).

NAVWPNSTA Seal Beach is located adjacent to the Pacific Ocean at the seaward edge of the Orange County Coastal Plain, at the northwest corner of Orange County, California. The northwest-trending Newport-Inglewood structural zone (NISZ) underlies the southwestern half of NAVWPNSTA Seal Beach. NISZ consists of a complex set of faults and folds that extend from Newport Beach approximately 10 miles southeast of NAVWPNSTA Seal Beach to Beverly Hills at the base of the Santa Monica Mountains, approximately 30 miles northwest of the station. Uplift along the NISZ has produced a line of low coastal hills and mesas near the southern end, including Landing Hill along the western edge of NAVWPNSTA Seal Beach. Adjacent to Landing Hill on the east is Sunset Gap, a wetlands comprising coastal salt marsh and tidal mudflats (Figure 2-4) (BNI 2000).

NAVWPNSTA Seal Beach soils typically contain abundant clay and silt and are poorly drained. Six soil types (Alo clay, Beaches, Bolsa silt loam, Bolsa silt clay loam, Myford sandy loam, and tidal flats) have been identified at the station (SCS 1978). The soil at IR Site 73 is primarily silty clay with a higher silt content observed at depth (CH2M Hill 2000). Groundwater is expected to be approximately 15 feet or more below ground surface (bgs) (CH2M Hill 2000).



REFERENCE: ADAPTED FROM JEG 1995.

EE/CA, IR Site 73
Figure 2-4
 Surface Features

Naval Weapons Station Seal Beach, California



Bechtel National, Inc.
 Clean II Program

Date: 9/19/01
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 Job No: 22214-151
 Rev No: C

Section 2 Site Characterization

2.1.5 Surrounding Land Use and Populations

NAVWPNSTA Seal Beach, located in Orange County, is bordered by the city of Seal Beach on the north, west, and southwest; the city of Westminster on the northeast; the city of Huntington Beach on the southeast and south; and county land on the south, between Edinger and Warner Avenues.

The predominant land use in the surrounding areas is medium-density residential development, with scattered parcels of high-density residential, commercial, industrial, and recreational development (JEG 1995). Future land uses for the adjacent cities include commercial/industrial, limited residential, and open space uses.

Explosive quantity distance arcs that restrict development to specific permitted uses cover approximately 75 percent of NAVWPNSTA Seal Beach. Two agricultural outleases, totaling approximately 2,000 acres, are used for farming (irrigated and dry) and maintenance. Approximately 100 acres of land is currently being leased for oil production. In addition to the outleased land, the National Wildlife Refuge (NWR), a major biological resource, encompasses approximately 900 acres of NAVWPNSTA Seal Beach. The NWR is an endangered species refuge established to preserve one of the largest remaining salt marshes in southern California. It provides essential habitat for California least tern and light-footed clapper rail and maintains quality habitat for California brown pelican, peregrine falcon, and Belding's Savannah sparrow. Areas covered by the explosive quantity distance arcs overlap the agricultural outleased areas and portions of the NWR.

Other land uses on NAVWPNSTA Seal Beach include residential development; ordnance transfer operations; weapons production, evaluation, and quality assurance; storage (inert and explosive); and administration/community support.

Potable water is supplied to NAVWPNSTA Seal Beach by the city of Seal Beach. Nonpotable water used for agricultural purposes is supplied by on-station agricultural wells with screen intervals between 140 and 600 feet bgs. Because of the distance of these wells from the site (the nearest well is approximately 9,000 feet east of IR Site 73) and their screen intervals, contaminants at IR Site 73 are not expected to impact the water quality in these wells.

Approximately 1,500 feet southwest of IR Site 73 is the J. H. McGaugh Elementary School, located on the west side of Seal Beach Boulevard between Bolsa Avenue and Marlin Avenue. The area approximately 200 feet south of IR Site 73 is used for military housing.

2.1.6 Sensitive Ecosystems

Ecological receptors at the site are minimal because of significant human activity and limited vegetative habitat, due to regular mowing at this site. Terrestrial ecological receptors, such as ground squirrels and rabbits, have been observed at IR Site 73. In addition, the mourning dove, California ground squirrel, and American kestrel are all commonly observed on maintained grassy areas near NAVWPNSTA Seal Beach.

The mourning dove is considered a receptor species at IR Site 73 due to its high exposure potential (i.e., spends high percentage of time in the study area; has a small body size; nests in the area; ingests soil, grit, and seeds that have been in contact with the contaminated soils).

The California ground squirrel is considered a receptor at this location because this species has been observed in terrestrial habitats throughout NAVWPNSTA Seal Beach; it spends a high percentage of time in the study area and its burrowing and foraging activities increase its chances of exposure to chemicals of potential concern (COPCs) in soil.

The American kestrel is considered a receptor species at this location because this species has been observed in terrestrial habitats throughout NAVWPNSTA Seal Beach. Because the American kestrel is considered high on the food chain, its exposure potential to COPCs that biomagnify is increased through ingestion. None of these potential receptors are state or federally listed as endangered, threatened, or special status.

Because of the distance of IR Site 73 to the nearest surface water body and the depth to the groundwater table, exposure to aquatic receptors is not considered at this site.

2.1.7 Meteorology

The climate of the NAVWPNSTA Seal Beach area is typical of the southern California coastal region. The adjacent Pacific Ocean has a moderating effect on temperatures. In the winter months, the maximum temperature usually ranges from mid- to high 50s (degrees Fahrenheit [°F]). In the summer months, maximum temperatures in the high 70s and low 80s °F are common, while low temperatures vary between the high 50s and the mid-60s °F (NEESA 1987).

The Seal Beach coastal area has an annual average rainfall of 10 to 12 inches, with the greatest rainfall occurring during the winter months (OCEMA 1986). Prevailing winds at the station are from the west. Occasionally, strong, dry northeasterly winds descend the mountain slopes during the fall, winter, and early spring months. During the winter months, Santa Ana wind conditions are common. Santa Ana winds occur when high pressure builds in the Great Basin area of Utah and Nevada. The clockwise circulation around the high-pressure system produces north-to-northeast winds, which can persist from several hours to a few days and reach sustained speeds of up to 60 miles per hour (JEG 1995). The highest winds at NAVWPNSTA Seal Beach were recorded in association with the winter and spring storms that invade southern California from the Pacific Ocean (NEESA 1987).

2.2 PREVIOUS ACTIONS AND INVESTIGATIONS

NAVWPNSTA Seal Beach and the DON have been actively engaged in the IR Program since 1980. However, IR Site 73 was only recently added to the IR Program. There have been no previous removal actions or previous removal activities taken at IR Site 73. The following summarizes the results of previous investigations conducted at IR Site 73.

Section 2 Site Characterization

Analysis of surface soil samples collected by personnel of the DON in the immediate vicinity of the water tower indicated elevated lead concentrations in soil. Lead was reported in samples at concentrations ranging from 224 milligrams per kilogram (mg/kg) to 3,420 mg/kg (SWDIV 1997). This warranted additional soil sampling to fully delineate the vertical and horizontal extent of contamination from paint residue.

In 2000, CH2M Hill conducted an FSI Phase II at IR Site 73. The objectives of the FSI Phase II were to determine the extent of metals and SVOCs and to screen for ecological and human-health risks. A professional archaeologist and a Native American monitor were present during sampling activities at IR Site 73 to minimize potential impacts to the known archaeological site. The sampling crew was trained in proper procedures to minimize impact during the investigation. The results and conclusions were as follows.

- Nine metals (arsenic, cadmium, copper, lead, manganese, mercury, nickel, selenium, and zinc) were reported at concentrations above the upper limit background values (ULBVs). Most of the metals concentrations above ULBVs were reported in surface soil samples. Observations of the concentration trends indicated that most of the metals (primarily lead, copper, and cadmium) attenuate with depth and that arsenic may be naturally occurring.
- Twenty SVOCs including 14 polynuclear aromatic hydrocarbons (PAHs) and 3 phthalates (common laboratory contaminants) were reported in soil samples. Most of the SVOCs were reported in surface soil samples.
- Based on the human-health risk screening, the risk from SVOCs is considered minimal and the risk from metals is considered acceptable.
- Based on the ecological risk screening, it was concluded that PAHs do not contribute to risk to ecological receptors. However, significant risk to terrestrial receptors exists from metals in soil. Safe ecological preliminary remediation goals (PRGs) for most receptors are exceeded by the maximum concentrations of these metals and by the 95 percent upper confidence limit (UCL) concentration of lead. Lead is the primary contributor to risk at this site.

2.3 SOURCE, NATURE, AND EXTENT OF CONTAMINATION

As discussed above, the source and nature of contamination at IR Site 73 are associated with several sandblasting and repainting events that occurred at the station's water tower. From these events, lead-bearing paint residue was deposited on the ground. The extent of lead in soil at IR Site 73, based on analytical results from the FSI Phase II, is shown on Figures 2-5 and 2-6. Figure 2-5 shows the lateral extent of lead in surface soil (based on soil samples collected from 0.5 to 1.0 foot bgs) and Figure 2-6 shows the lateral extent of lead in subsurface soil (based on soil samples collected from 2.0 to 2.5 feet bgs). Combined, these two figures provide an approximation of the vertical extent of lead in soil and illustrate that most of the elevated lead concentrations were reported in surface soil samples. The figures show that lead concentrations exceeding the stationwide ULBV of 35.7 mg/kg and ranging up to 100 mg/kg are widespread throughout the approximately 6-acre investigation area. However, once the concentrations begin to exceed the 100 mg/kg concentration level, the lateral extent is greatly reduced. Another sharp reduction

in the lateral extent can be observed for lead concentrations above 400 mg/kg, which are localized in two relatively small areas. One of the localized areas with lead concentrations is very close to the water tower while the other is adjacent to Seal Beach Boulevard. It was theorized in the FSI Phase II that, in addition to lead contamination from water tower painting/sandblasting activities, lead deposited from atmospheric pollution due to the close proximity of Seal Beach Boulevard to the site may have also contributed to the values exceeding background levels.

2.4 ANALYTICAL DATA

This section discusses analytical data from the FSI Phase II and summarizes data quality.

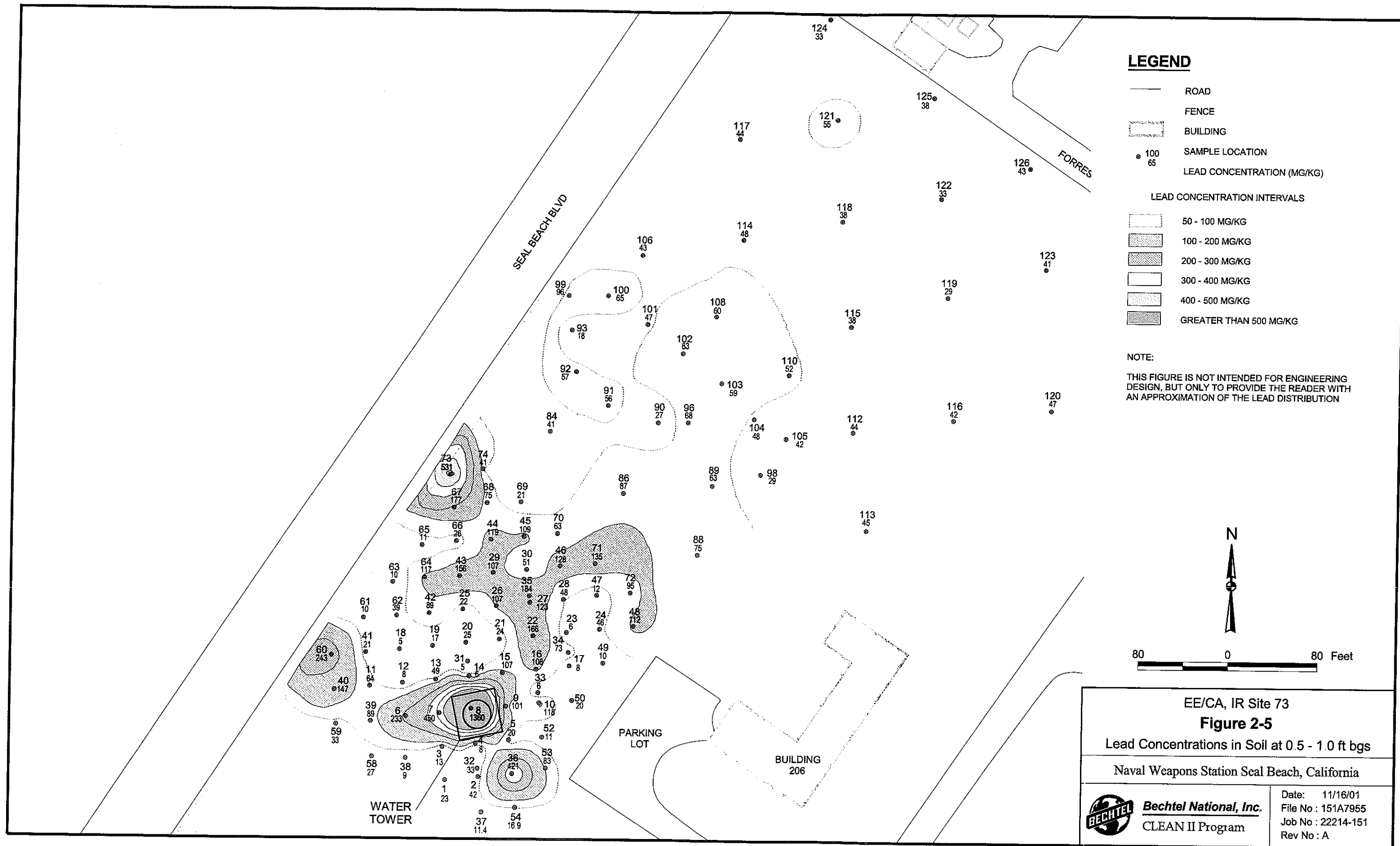
2.4.1 Presentation of Analytical Data

Soil samples were collected from under and around the station's water tower during the FSI Phase II. Surface soil samples were collected from 0.5 to 1.0 foot bgs and subsurface soil samples were collected from 2.0 to 2.5 feet bgs. To assess the extent of the contamination, perimeter samples were collected first and a 24-hour turnaround time was requested for lead analyses. Where the lead concentration exceeded the stationwide ULBV for lead (35.7 mg/kg), the grid was extended and additional samples were collected and analyzed for lead. However, the soil samples were only analyzed for metals and/or SVOCs based on the lead results. A total of 142 samples were analyzed for lead, 113 samples for metals, and 102 samples for SVOCs. Reported lead concentrations ranged from 2.7 to 1,360 mg/kg. Table 2-1 shows the summary statistics for the reported analytes. A complete set of laboratory results can be found in the FSI Phase II Report, Appendix H (CH2M Hill 2000).

2.4.2 Data Quality

The FSI Phase II Report was reviewed for data quality. In general, the information contained in the FSI Phase II Report was found to be of acceptable quality to adequately describe site conditions. U.S. EPA analytical methods were used for analysis of soil samples. Field and laboratory quality control samples were analyzed at appropriate frequencies.

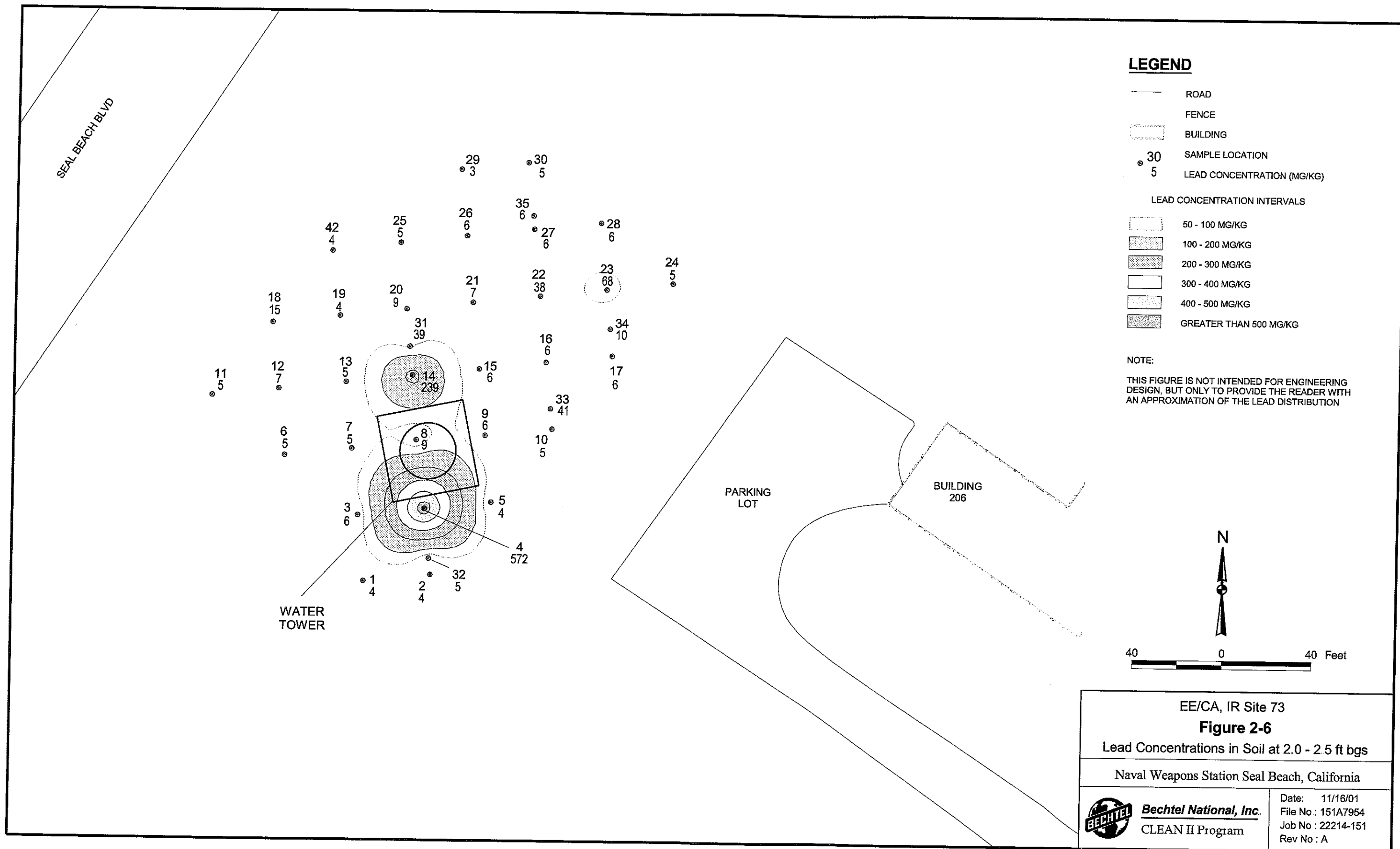
It was noted in the FSI Phase II Report that project chemists evaluated all analytical data independent of the laboratory. The data were reviewed for the quality control (QC) specifications identified in the project Quality Assurance Project Plan (QAPP) (SWDIV 2000) and were flagged in accordance with the project QAPP and U.S. EPA data validation functional guidance (U.S. EPA 1994). Raw data checks (i.e., laboratory instrument output/bench record reviews for laboratory calculations, algorithms, and transcription errors) were carried out for approximately 10 percent of the data. Results of the data validation did not indicate significant issues regarding data quality. The data were found to meet the QAPP QC criteria for over 95 percent of the data (CH2M Hill 2000).



EE/CA, IR Site 73
Figure 2-5
 Lead Concentrations in Soil at 0.5 - 1.0 ft bgs
 Naval Weapons Station Seal Beach, California

Bechtel National, Inc.
 CLEAN II Program

Date: 11/16/01
 File No: 151A7955
 Job No: 22214-151
 Rev No: A



Section 2 Site Characterization

Table 2-1
Summary Statistics for Analytes Reported in Soil Samples Collected During the FSI Phase II

Analyte	> Reporting Limit	Maximum	Mean	Maximum MDL	Mean MDL
SVOCs (µg/kg)					
1,2,4-trichlorobenzene	0 of 102	— ^a	201 ^b	350	850
1,2-dichlorobenzene	0 of 102	—	201	350	850
1,3-dichlorobenzene	0 of 102	—	201	350	850
1,4-dichlorobenzene	0 of 102	—	201	350	850
2,4,5-trichlorophenol	0 of 102	—	490	850	2,100
2,4,6-trichlorophenol	0 of 102	—	201	350	850
2,4-dichlorophenol	0 of 102	—	201	350	850
2,4-dimethylphenol	0 of 102	—	201	350	850
2,4-dinitrophenol	0 of 102	—	490	850	2,100
2,4-dinitrotoluene	0 of 102	—	201	350	850
2,6-dinitrotoluene	0 of 102	—	201	350	850
2-chloronaphthalene	0 of 102	—	201	350	850
2-chlorophenol	0 of 102	—	201	350	850
2-methylnaphthalene	0 of 102	—	201	350	850
2-methylphenol	0 of 102	—	201	350	850
2-nitroaniline	0 of 102	—	490	850	2,100
2-nitrophenol	0 of 102	—	201	350	850
3,3'-dichlorobenzidine	0 of 102	—	201	350	850
3-nitroaniline	0 of 102	—	490	850	2,100
4,6-dinitro-2-methylphenol	0 of 102	—	490	850	2,100
4-bromophenyl phenyl ether	0 of 102	—	201	350	850
4-chloro-3-methylphenol	0 of 102	—	201	350	850
4-chloroaniline	0 of 102	—	201	350	850
4-chlorophenyl phenyl ether	0 of 102	—	201	350	850
4-methylphenol (p-cresol)	1 of 102	640	206	350	850
4-nitroaniline	0 of 102	—	490	850	2,100
4-nitrophenol	0 of 102	—	490	850	2,100
Acenaphthene	2 of 102	1,200	208	350	850
Acenaphthylene	0 of 102	—	201	350	850
Anthracene	12 of 102	4,200	226	350	850
Benzo(a)anthracene	43 of 102	10,000	387	350	850
Benzo(a)pyrene	42 of 102	7,300	321	350	850
Benzo(b)fluoranthene	44 of 102	9,000	390	350	850
Benzo(g,h,i)perylene	13 of 102	850	201	350	850
Benzo(k)fluoranthene	20 of 102	3,200	225	350	850

(table continues)

Section 2 Site Characterization

Table 2-1 (continued)

Analyte	> Reporting Limit	Maximum	Mean	Maximum MDL	Mean MDL
Benzyl butyl phthalate	0 of 102	—	201	350	850
bis(2-chloroethoxy)methane	0 of 102	—	201	350	850
bis(2-chloroethyl)ether	0 of 102	—	201	350	850
bis(2-chloroisopropyl)ether	0 of 102	—	201	350	850
bis(2-ethylhexyl)phthalate	27 of 102	10,000 J	265	350	850
Carbazole	6 of 102	710 J	196	350	850
Chrysene	44 of 102	11,000	410	350	850
Dibenzo(a,h)anthracene	10 of 102	900	191	350	850
Dibenzofuran	1 of 102	250 J	200	350	850
Diethyl phthalate	23 of 102	3,500	254	350	850
Dimethyl phthalate	0 of 102	—	201	350	850
di-n-butyl phthalate	46 of 102	110 J	142	350	850
di-n-octyl phthalate	0 of 102	—	201	350	850
Fluoranthene	45 of 102	23,000 D	564	350	850
Fluorene	1 of 102	830	206	350	850
Hexachlorobenzene	0 of 102	—	201	350	850
Hexachlorobutadiene	0 of 102	—	201	350	850
Hexachlorocyclopentadiene	0 of 102	—	201	350	850
Hexachloroethane	0 of 102	—	201	350	850
Indeno(1,2,3-c,d)pyrene	22 of 102	2,500	226	350	850
Isophorone	0 of 102	—	201	350	850
Naphthalene	0 of 102	—	201	350	850
Nitrobenzene	0 of 102	—	201	350	850
N-nitrosodiphenylamine	0 of 102	—	201	350	850
N-nitrosodipropylamine	0 of 102	—	201	350	850
Pentachlorophenol	0 of 102	—	490	850	2,100
Phenanthrene	26 of 102	13,000 D	319	350	850
Phenol	0 of 102	—	201	350	850
Pyrene	49 of 102	24,000 D	611	350	850
Metals (mg/kg)					
Aluminum	113 of 113	25,800	15,715	42	59
Antimony	0 of 113	—	5.8	13	18
Arsenic	70 of 113	76	6.1	2.1	2.9
Barium	113 of 113	974	138	42	59
Beryllium	67 of 113	0.87 B	0.49	1.1	1.5
Cadmium	57 of 113	9.1	1.9	1.1	1.5
Calcium	113 of 113	143,000	10,457	1,060	1,470
Chromium	113 of 113	85	35	2.1	2.9

(table continues)

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Table 2-1 (continued)

Analyte	> Reporting Limit	Maximum	Mean	Maximum MDL	Mean MDL
Cobalt	92 of 113	13	9.0	11	15
Copper	113 of 113	94	31	5.3	7.3
Iron	113 of 113	29,200	22,388	21	29
Lead	142 of 142	1,360	70	0.63	0.95
Magnesium	113 of 113	8,490	6,013	1,060	1,470
Manganese	113 of 113	8,020	672	3.2	4.4
Mercury	80 of 113	0.33	0.076	0.090	0.14
Molybdenum	0 of 113	—	2.3	4.2	29
Nickel	105 of 113	44	20	8.5	12
Potassium	113 of 113	6,450 J	4,751	1,060	1,470
Selenium	2 of 113	10	0.47	1.1	1.5
Silver	18 of 113	5.4	1.4	2.1	2.9
Sodium	89 of 113	1,960 J	466	1,060	1,470
Thallium	6 of 113	28	1.0	2.1	2.9
Vanadium	113 of 113	58*	42	11	15
Zinc	113 of 113	341*	112	4.2	5.9

Source:
CH2M Hill 2000

Notes:

- ^a dash indicates not applicable
- ^b when the analytes were not detected, the arithmetic means were calculated by assuming that the analyte was detected at half the MDL

Acronyms/Abbreviations:

CRDL – contract required detection limit
CRQL – contract required quantitation limit
IDL – instrument detection limit
IR – Installation Restoration (Program)
MDL – method detection limit
µg/kg – micrograms per kilogram
mg/kg – milligrams per kilogram
SVOC – semivolatile organic compound

Data Qualifiers:

- * – duplicate analysis not within control limits
- B – estimated – below CRDL and above IDL
- J – estimated – below CRQL and above MDL
- D – quantitative value from diluted analysis – utilize undiluted analysis to evaluate data usability

Precision, accuracy, representativeness, comparability, and completeness (PARCC) parameter calculations were defined in the QAPP and evaluated in the FSI Phase II. Results of the assessment for each parameter are as follows.

- Precision data were found to meet project objectives and were within limits.
- Accuracy measurement data were found to meet project objectives and were within limits.
- Representativeness was assessed in both qualitative and quantitative terms. The project report discussed the qualitative aspects of representativeness in terms of design of the field sampling plan, sampling techniques, sample handling protocols, and associated documentation. Quantitative measures of representativeness included field and laboratory blank measurements to identify whether contamination was introduced through field or laboratory operations. Field duplicate measurements were used to establish variability.
- Comparability of the data was established through the use of standard analytical methods and QC procedures established in the project QAPP; consistent reporting units for a specified procedure; and method detection limits for all analytical parameters that were established in accordance with 40 C.F.R. Part 136, Appendix B, before the start of the analyses to meet the project requirements.
- Field activity completeness was assessed during the preparation of the FSI Phase II Report within the context of the overall sampling design. Data completeness met the project needs and expectations.

2.5 STREAMLINED RISK EVALUATION

The decision to proceed with a removal action at IR Site 73 was based largely on the results of the human-health and ecological risk screening for soils performed as part of a FSI Phase II (CH2M Hill 2000). This risk evaluation focused on chemicals in the soil.

2.5.1 Previous Risk Evaluations and Findings

Human-health and ecological risk screening for soils at IR Site 73 was performed as part of a FSI Phase II (CH2M Hill 2000). The COPCs that were evaluated were metals and SVOCs. Results of these risk assessments are summarized in Sections 2.5.1.1 and 2.5.1.2.

According to the NCP, eight factors must be considered in determining the appropriateness for a removal action. Conditions at IR Site 73 meet the following NCP requirement for a removal action (40 C.F.R. 300.415[b][2]): actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

The removal action will be conducted as a non-time-critical removal action because the associated planning period will be completed after 6 months from issuance of the final EE/CA.

Section 2 Site Characterization

2.5.1.1 HUMAN-HEALTH RISK ASSESSMENT

During the human-health risk screening, soil analytical data were compared with stationwide ULBVs and residential PRGs. The excess lifetime cancer risk (ELCR) and noncancer hazard quotient (HQ) for each COPC were then estimated. The 95 percent UCL concentration of metals in soil at the site yielded an ELCR of 2×10^{-9} and a noncancer hazard index (HI) of 0.7. The ELCR associated with SVOCs in soil was 1×10^{-5} , primarily as a result of the PAH benzo(a)pyrene. The noncancer HI was less than 0.1 for SVOCs at IR Site 73. The recommendation for a removal action was not based on this low risk to human health.

2.5.1.2 ECOLOGICAL RISK ASSESSMENT

A screening-level ecological risk assessment was performed for contaminants present in soil at IR Site 73 (CH2M Hill 2000). Except for lead, contaminants were found to present no unacceptable ecological risk. The FSI Phase II Report (CH2M Hill 2000) recommended a cleanup goal of 41.6 mg/kg for lead at IR Site 73, based on the results of the screening-level ecological risk assessment. This cleanup goal was selected because it was the lowest PRG based on the ecological receptors that were modeled (mourning dove, ground squirrel, and American kestrel). As part of this report, a refined ecological risk analysis was performed for these ecological receptors as well as additional ecological receptors (Appendix A). The refined PRGs and new cleanup goal are presented in Section 3.5.

2.5.2 Health and Environmental Effects Associated With Lead and Threat to Nearby Human Populations and Environment

Lead occurs naturally in the environment. It is not an essential nutritional element. Because it is insoluble, metallic lead is considered nontoxic. However, lead ions and finely divided insoluble lead (fumes) can produce a variety of toxic effects in humans provided that the level of exposure is high enough. Effects include anemia, delayed mental development and learning difficulties in children, and kidney dysfunction. At high exposure levels, lead can cause sterility, abortion, and infant mortality. Certain forms of lead have been shown to cause kidney tumors in laboratory animals, leading the U.S. EPA and the International Agency for Research on Cancer to classify lead as a probable human carcinogen.

Studies have shown that the toxic effects of lead usually do not occur until the concentration of lead in the blood of humans reaches 100 micrograms per liter. Lead can also produce toxic effects in the environment. Lead concentrations in plants normally range between 3 and 4 mg/kg. Apparently, 50 mg/kg is an upper tolerance limit for most vascular plants. No sublethal effects of toxicity are noticeable, but death occurs after 50 mg/kg (Salisbury and Ross 1969, Antonovics et al. 1971). Lead uptake is constant with increasing lead levels in the soil until a point is reached when uptake becomes unrestricted and rises abruptly. Species can rarely tolerate conditions above the level at which there is a sudden increase in lead uptake (Antonovics et al. 1971).

Signs of lead poisoning in domestic and laboratory animals are similar to those in humans. Except for the extensive evaluation of effects of ingesting lead shot, wildlife data are lacking in literature. However, lead in the diet could result in reduced populations of species because of stillbirths and abortion and reduced learning ability that could cause the young to be more susceptible to predators.

Based on results of the human-health risk assessment performed in the FSI Phase II, lead in soil at IR Site 73 does not pose significant risk to human health. The greatest potential for human exposure to lead would be during intrusive activities, if included as a component of the selected removal alternative. These risks would be addressed under the project safety and health plan.

2.5.3 Documented Exposure Pathways

The only receptors of potential concern are the following terrestrial ecological receptors that live on or otherwise use IR Site 73.

- The mourning dove spends a high percentage of time in the study area; has a small body size; nests in the area; and ingests soil, grit, and seeds that have been in contact with contaminated soils (CH2M Hill 2000).
- The California ground squirrel has been observed in terrestrial habitats throughout NAVWPNSTA Seal Beach; it spends a high percentage of time in the study area and its burrowing and foraging activities increase its chances of exposure from soilborne COPCs (CH2M Hill 2000).
- The American kestrel has also been observed in terrestrial habitats throughout NAVWPNSTA Seal Beach. Because the American kestrel is considered high on the food chain, its exposure potential to COPCs that biomagnify is increased through ingestion (CH2M Hill 2000).
- The American robin represents several species of birds that feed on insects, earthworms, and other invertebrates and spend a high percentage of time in the study area; have a small body size; nest in the area; and ingest soil, grit, and food items that have been in contact with contaminated soils.
- The raccoon is a mid-sized (larger than a rodent) mammalian omnivore present at the site; its foraging activities increase its chances of exposure from soilborne COPCs.
- The red fox is a mid-sized (larger than a rodent) mammalian carnivore; its foraging activities and high position on the food chain increase its chances of exposure from soilborne COPCs, particularly bioaccumulative compounds. Although the red fox was relocated to an off-site location several years ago (so it could not disturb least tern nests), it is considered representative of mammalian carnivore species.

2.5.4 Sensitive Populations

IR Site 73 is frequented by station maintenance personnel and personnel involved in weekly mowing activities. In addition, several terrestrial ecological receptors such as

Section 2 Site Characterization

ground squirrels and rabbits have been observed at the site. However, ecological receptors are limited because of the significant human activity and limited vegetative habitat, due to regular mowing. Terrestrial ecological receptors at the site are the California ground squirrel, mourning dove, and American kestrel, all of which are commonly observed on the maintained grassy areas at NAVWPNSTA Seal Beach (CH2M Hill 2000). None of these receptors are state or federally listed as endangered, threatened, or special status.

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Section 3

IDENTIFICATION OF REMOVAL ACTION OBJECTIVES

This section identifies the removal action scope and objectives for IR Site 73. Removal action objectives (RAOs) are based on CERCLA, the NCP, streamlined risk evaluation (Section 2.5), sensitive ecosystems (Section 2.1.6), and chemical- and location-specific applicable or relevant and appropriate requirements (ARARs) (Section 3.4.2). These objectives were used to screen technologies and to develop removal action alternatives (Sections 4 and 5).

3.1 STATUTORY FRAMEWORK

This removal action is taken pursuant to CERCLA and the NCP under the delegated authority of the Office of the President of the United States by Executive Order (EO) 12580. This order authorizes the DON to conduct and finance removal actions. This removal action is non-time-critical because more than a 6-month planning period will have been available from the time the DON determined that a removal action was appropriate and the time that on-site activities will be initiated. Requirements for this EE/CA and its mandated public comment period provide opportunity for public input to the cleanup process.

Generally, this entire process is also governed by the Federal Facility Site Remediation Agreement (FFSRA). The water tower area was designated as IR Site 73 after the FFSRA was signed in 1991 by the DON, DTSC (Department of Health Services at that time), and RWQCB and amended in August 1994. IR Site 73 will be included in a future version of the FFSRA when it is revised. In the interim, all activities related to IR Site 73 will be performed in accordance with the current FFSRA.

Additionally, Ca-HSC specifies required documentation, which depends upon the costs of the removal action. Ca-HSC requires development of either a RAP (i.e., for removal actions that cost \$1 million or more) or a RAW (i.e., for removal actions that cost less than \$1 million). DTSC may waive the RAP requirements in favor of a RAW for removal actions when an Imminent and/or Substantial Endangerment determination exists. Furthermore, DTSC may also waive the RAP requirements if a RAP-equivalent document that meets the requirements of Ca-HSC Section 25356.1(h)(3) is prepared.

The DON, with state regulatory oversight, is the lead agency for the removal action. As such, the DON has final approval authority over the recommended alternative and all public participation activities with state concurrence. SWDIV, as regional manager of the DON's CERCLA program, is providing technical expertise to NAVWPNSTA Seal Beach to conduct activities specific to the preparation of this EE/CA and the execution of the recommended alternative.

This EE/CA complies with the requirements of CERCLA, Superfund Amendments and Reauthorization Act, NCP at 40 C.F.R. Part 300, Defense Environmental Restoration Program at 10 *United States Code* Section 2701, et seq., and EO 12580. This EE/CA is considered appropriate based on the following factor under 40 C.F.R. Part 300.415(b)(2)(i): "actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants."

Section 3 Identification of Removal Action Objectives

This EE/CA along with the action memorandum will also satisfy the Ca-HSC requirements for a removal action.

3.2 DETERMINATION OF REMOVAL SCOPE

The scope of this removal action is to reduce risk to ecological receptors from exposure to elevated lead concentrations in soil associated with sandblasting/painting activities at IR Site 73. Since IR Site 73 is known to contain cultural resources, the volume of soil subject to removal action and/or disturbance will be limited to the maximum extent practicable. The removal action alternatives considered in this EE/CA should make the site suitable for a determination that no further response action for CERCLA compliance is appropriate at IR Site 73 for the current land use. However, it is difficult to predict the future land use of this site. NAVWPNSTA Seal Beach is not slated for closure or changes in land use. The Navy will use the Base Master Plan to track and control changes in land use and determine the need for reassessment of human-health and/or ecological risk should the land use change. In addition, the National Environmental Policy Act (NEPA) review process is in place to determine whether a site is adequate to be used for any purpose other than its current use. Should the planned use of IR Site 73 change in the future, analysis and documentation of historical land use and cleanup activities will be conducted in accordance with the NEPA provisions.

A project work plan will be prepared by the remedial action contractor (RAC) to implement the final alternative selected by the DON. The project work plan will describe planning and design to facilitate the removal action, including a confirmation sampling program for lead. A project report will be prepared to document the removal action activities, which will provide the basis if a decision for no further action is recommended following the removal.

3.3 DETERMINATION OF REMOVAL SCHEDULE

There are neither anticipated weather-related restrictions nor availability-of-services restrictions expected to impact the removal schedule. This EE/CA, which was available for public review and agency comment for a minimum of 30 days, identifies and recommends a removal action alternative. The DON reviewed and prepared written responses to significant public comments, which are included in this final EE/CA (Appendix D).

3.4 APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

The NCP states, "Removal actions . . . shall to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility citing laws" (40 C.F.R. 300.415[j]).

Section 3 Identification of Removal Action Objectives

The evaluation of ARARs for this EE/CA is included as Appendix B. The following subsections provide an overview of the ARARs process and a summary of ARARs that potentially affect the development of RAOs.

3.4.1 ARARs Overview

Identification of ARARs is a site-specific determination that involves a two-part analysis. First, it must be determined whether a given requirement is applicable; then, if it is not applicable, it must be determined whether the requirement is relevant and appropriate. A requirement is deemed applicable if the specific terms of the law or regulation directly address the chemical of concern (COC), removal action, or place involved at the site. If the jurisdictional prerequisites of the law or regulation are not met, a legal requirement may nonetheless be relevant and appropriate if site circumstances are sufficiently similar to circumstances in which the law otherwise applies and the requirement is well suited to the conditions of the site.

A requirement must be substantive to constitute an ARAR for activities conducted on-site. Procedural or administrative requirements (e.g., permits and reporting requirements) are not ARARs.

In addition to ARARs, NCP provides that where ARARs do not exist, agency advisories, criteria, or guidance are "to be considered" (TBC) useful "in helping to determine what is protective at a site or how to carry out certain actions or requirements" (55 *Federal Register* 8745). The NCP preamble states, however, that provisions in the TBC category "should not be required as cleanup standards because they are, by definition, generally neither promulgated nor enforceable, so they do not have the same status under CERCLA as do ARARs."

As the lead federal agency, the DON has the primary responsibility for the identification of federal ARARs relevant for IR Site 73. As the lead state agency, DTSC has the responsibility for identifying state ARARs.

The DON formally requested state chemical-, location-, and action-specific ARARs for IR Site 73. A letter was sent 20 June 2001 to DTSC. Following the DON solicitation for ARARs from DTSC, DTSC requested ARARs from other state and local agencies. DTSC issued a letter to the DON on 08 August 2001 with correspondence regarding the ARARs solicitation from the following agencies:

- Department of Transportation (DOT) (correspondence dated 31 July 2001)
- California Integrated Waste Management Board (correspondence dated 26 July 2001)
- California Air Resources Board (correspondence dated 23 July 2001)
- county of Orange, Public Facilities and Resources Department (correspondence dated 19 July 2001)
- city of Seal Beach (correspondence dated 25 July 2001)
- Department of Fish and Game (correspondence dated 03 August 2001)

Section 3 Identification of Removal Action Objectives

- South Coast Air Quality Management District (SCAQMD) (correspondence dated 26 July 2001)

In addition, the RWQCB Santa Ana Region issued a letter to the DON on 17 August 2001 in response to the ARARs request.

Some of the agencies requested by DTSC to provide ARARs input did not respond. On 15 October 2001, the DON issued a letter to these agencies and requested that they respond to ensure timely implementation of the removal action. This follow-up request was sent to the following agencies:

- California Coastal Commission
- State of California Department of Health Services
- Orange County Health Care Agency
- Orange County Sanitation District
- Orange County Water District
- City of Seal Beach Planning Department
- South Coast Air Quality Management District

Subsequently, responses were received from the following agencies:

- Orange County Sanitation District (correspondence dated 31 October 2001)
- California Coastal Commission (correspondence dated 22 October 2001)

Requirements of ARARs and TBCs are generally divided into three categories: chemical-specific, location-specific, and action-specific requirements. Chemical-specific and location-specific ARARs affecting the development of RAOs are discussed in the following section. Other chemical-specific, location-specific, and action-specific ARARs are presented in Section 5 for each alternative considered. Appendix B includes a detailed discussion of all ARARs considered for this EE/CA.

3.4.2 ARARs Affecting Removal Action Objectives

ARARs have been identified for each chemical, location, and removal action alternative (Appendix B). The substantive provisions of the following chemical- and location-specific requirements may impact the development of the RAOs:

- Resource Conservation and Recovery Act (RCRA) hazardous waste requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Characterization of solid waste as toxic based on TCLP at 40 C.F.R. 261.24(a) and Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)
- National Historic Preservation Act
- Archaeological and Historic Preservation Act

Section 3 Identification of Removal Action Objectives

- Archaeological Resources Protection Act
- Cal. Fish & Game Code § 3005(a) regarding the taking of birds and mammals

3.5 REMOVAL ACTION OBJECTIVES

Based on CERCLA, the NCP, the risk assessment in the FSI Phase II, and ARARs, the RAOs are as follows:

- minimize further migration of sandblasted paint chips on the ground surface at IR Site 73;
- reduce risk to ecological receptors from lead-impacted soil to acceptable levels; and
- minimize potential impact to cultural resources at IR Site 73 to the extent practicable.

The ecological risk, summarized in Section 2.5.1.2, was refined to include consideration of the previously described ecological receptors (mourning dove, ground squirrel, and American kestrel) and additional ecological receptors (raccoon [mammal, omnivore], American robin [bird, omnivore], and red fox [mammal, carnivore]; plants; soil invertebrates; and soil microbes) (Appendix A). Although the red fox was relocated to an off-station location several years ago, it was used in the refined ecological risk assessment to represent mammalian carnivore species. The addition of supplemental ecological receptors provides for a broader evaluation of the ecosystem that may be at the site. PRGs for lead in soil were developed from predictive exposure scenarios for these ecological receptors. PRGs, based on a validation study and site-specific measurements of effects, were not prepared. No investigations of site-specific effects were conducted. Therefore, PRGs based on predictive exposure scenarios are expected to be conservative and would likely underestimate validation study-based PRGs.

Selection of the new cleanup goal took into consideration the PRGs developed for the ecological receptors applicable to the site and the ecological and other effects to the site that may occur from implementing the selected removal action.

Based on the refined ecological risk assessment (Appendix A), the recommended cleanup goal for lead in soil is 317 mg/kg. This value is considered protective of wildlife that may be present at the site, such as small birds and mammals, and protective of soil invertebrates and microbes that represent a source of food for the small birds and mammals.

Section 3 Identification of Removal Action Objectives

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Section 4

IDENTIFICATION AND SCREENING OF TECHNOLOGIES

Before the removal alternatives were developed, general response actions were determined based on the RAOs. The primary RAO for IR Site 73 is to reduce the risk to ecological receptors from exposure to lead-impacted soil to acceptable levels. Disturbance of cultural resources should also be minimized to the extent practicable. Technologies and process options correlating with the general response action categories were then identified and screened for effectiveness, implementability, and cost. The retained technologies and process options were assembled into the removal alternatives that are described and evaluated in Section 5.

4.1 GENERAL RESPONSE ACTIONS

For this effort, five general response action categories were considered: no action, engineering controls, treatment, excavation/backfilling, and disposal.

- **No action** entails no further response action of any type, including administrative controls and monitoring.
- **Engineering controls** reduce potential hazards by limiting exposure to the site through physical controls (e.g., fencing). This type of response action does not reduce the level of contamination on-site.
- **Treatment** involves *in situ* or *ex situ* treatment to either chemically alter contaminants to less harmful by-products or physically alter the contaminated media (e.g., electrokinetic remediation, phytoremediation, soil washing, or solidification/stabilization).
- **Excavation/backfilling** involves removing contaminated soil using mechanical equipment. Following excavation, the area would be backfilled with clean soil, returned to original grade, and revegetated.
- **Disposal** involves the transfer and disposition of excavated soil to an on- or off-site location.

4.2 SCREENING OF TECHNOLOGIES AND PROCESS OPTIONS

Technologies were identified based on general response action categories (Section 4.1). For each technology, representative process options were selected. The process options were screened against the general criteria listed in Section 4.3. Table 4-1 lists removal technologies and process options identified for the screening process and summarizes the results. The technology categories screened are:

- no action,
- access restrictions,
- caps/covers,
- physical/chemical treatment,
- biological treatment,
- excavation,

- backfilling,
- on-site disposal, and
- off-site disposal.

4.3 SCREENING CRITERIA

Removal action technologies were screened following U.S. EPA technical guidance (U.S. EPA 1988). Process options that were retained following this screening evaluation were assembled into removal action alternatives that were also screened for effectiveness, implementability, and cost in Section 5.

4.3.1 Effectiveness

This evaluation criterion emphasizes each process option's performance and capability to meet RAOs. To evaluate the effectiveness of the process options, consideration was given to 1) overall protection of human health and the environment; 2) compliance with ARARs; 3) long-term effectiveness; 4) reduction of toxicity, mobility, or volume of contaminants; and 5) short-term effectiveness. The less effective process options from each technology group may be eliminated. Process options that do not provide adequate protection of human health and the environment may also be eliminated from further consideration.

4.3.2 Implementability

This evaluation criterion considers the relative ease to implement a process option. This would include consideration of technical feasibility, commercial availability of materials and equipment, and availability of the technology. Other factors would be availability of skilled labor, logistical considerations, and state and/or community acceptance. Process options that are technically or administratively infeasible or that would require equipment, specialists, or facilities that are not available within a reasonable period of time may be eliminated from further consideration.

4.3.3 Cost

Process options were evaluated based on qualitative costs. Process options with lower costs were preferred if the effectiveness and implementability criteria were judged to be similar.

Table 4-1
General Response Actions, Technologies, and Process Options Compared to Screening Criteria

General Response Action	Technology	Process Option	Description	Effectiveness	Implementability	Cost	Retained
No action	No action	None	This process option serves as a baseline against which other process options are compared	Risk is not reduced Does not restrict access to site Does not reduce toxicity, mobility, or volume of contaminated material Both short- and long-term effectiveness low	Feasible as it requires no action No action may not be acceptable to the state and public	No associated costs	Yes (although low in effectiveness and not expected to be acceptable to the state and public, retained for development of no action alternative for comparison purposes only)
Engineering controls	Access restrictions	Fencing	Fencing provides a vertical barrier at the perimeter of the contaminated area. A combination of galvanized steel/barbed-wire fencing was considered	Does not effectively restrict ecological-receptor access to impacted soil Does not reduce toxicity, mobility, or volume of contaminated material Restricts land use Negatively affects aesthetics	Minimal effort required to install fence	Cost is medium to low	No
		Alarms	Motion- or heat-sensing devices at the site that would deter access by sounding an alarm	Do not prevent access to the site Do not reduce toxicity, mobility, or volume of contaminated material Noise concerns	Installation of alarms and monthly monitoring of system is a minimal effort	Costs would be medium Cost for personnel salary for monitoring alarms Capital costs for alarms Long-term maintenance of alarms	No
	Caps, covers	Soil/vegetative cover	Soil/vegetative cap or cover to separate receptors from contamination	Ineffective at separating burrowing species from contamination Workers who install cap/cover would be exposed to contamination Long-term monitoring required Restricts land use Soil/vegetative cap or cover would raise existing grades and may be visually unattractive	Implementation of cap/cover exposes workers to contaminants Implementation feasible	Cost would be medium Capital costs for cap/cover Cost for personnel salary while installing cap/cover Cost for personnel salary for long-term monitoring	No
Treatment	Physical/chemical treatment	Electrokinetic remediation	<i>In situ</i> process in which an electrical field is created in soil matrix by applying a low-intensity direct current to cause metals to migrate toward a collection area. The soil with concentrated metals in the collection area is then removed.	Ineffective due to the shallow nature of contaminants and low moisture in surface soils Metal contaminants may not be in ionic form	Implementation effort would be large in proportion to the low volume of contamination Extensive testing is required	Cost would be high	No
		Soil washing	Uses liquids (usually water, sometimes combined with chemical additives) and a mechanical process to scrub soil. Scrubbing removes hazardous contaminants and concentrates them into a smaller volume. The smaller volume of soil can be further treated by other methods and the clean, larger volume of soil can potentially be used as backfill	A small volume of soil still needs to be removed and disposed of Ineffective because the site soils consist primarily of silt and clay Requires extensive and expensive tests Risk from off-site transportation is minimized or eliminated	Implementation is feasible as contamination is limited to top few feet of soil Requires implementation of accompanying technology	Cost would be high	No

(table continues)

Table 4-1
General Response Actions, Technologies, and
Process Options Compared to Screening Criteria

Table 4-1 (continued)

General Response Action	Technology	Process Option	Description	Effectiveness	Implementability	Cost	Retained
Treatment (continued)	Physical/chemical treatment (continued)	Solidification/stabilization	During solidification, contaminants are physically bound or enclosed within a stabilized mass During stabilization, chemical reactions are induced between the stabilizing agent and contaminants to reduce their mobility	Not totally effective at preventing contact with contaminants by ecological receptors, particularly if the result is loamy Would increase the volume of contaminated soil and raise the grade, which would be undesirable aesthetically Land use would be restricted Risk from off-site transportation is minimized or eliminated	Implementation is feasible; treatability studies are generally required Solidified material may hinder future site use Some processes result in a significant increase in volume, up to double the original volume	Costs would be fairly high	No
	Biological Treatment	Phytoremediation	Describes a variety of remediation methods that use plants to remove contaminants from soil Phyto-extraction is a process during which water-soluble metals are taken up by the plant species The metals are stored in the plant's aerial shoots that are harvested and either smelted for potential metal recycling/recovery or disposed of as a hazardous waste.	Ineffective in short term Potentially effective long-term, but the harvesting of plants will still periodically disturb site surface soils Requires additional human activity at the site that may interfere with ecological receptors	Long implementation process	Cost would be high Cost for personnel to monitor plants Capital costs for plants Costs for disposal of plants at end of technology period	No
Excavation/backfilling	Excavation	Mechanical excavation	Involves physically removing contaminated soil with lead concentrations above the cleanup goal using mechanical equipment.	Effective because all contamination above the cleanup goal is removed from the site Short-term exposures Effective in long term	Implementation is feasible and project duration is short	Cost is somewhat high	Yes
		Data recovery (manual excavation)	Involves manual excavation by an archaeologist in order to recover, process, and catalog any cultural resources present. This is followed by mechanical excavation.	Effective because all contamination above the cleanup goal is removed from the site Short-term exposures Effective in long term	Implementation is feasible Project duration is longer than mechanical excavation alone but still fairly short	Cost is high	Yes
	Backfilling	Backfilling	Backfill is applied after excavation to restore and regrade the site	Once contaminants have been removed, the excavation is backfilled and graded to minimize injury to humans and impacts to aesthetics No future land-use restrictions	Implementation is feasible If available and of suitable quality, soil from other on-station projects will be used to backfill the excavation Clean soil may need to be imported to the site	Cost are low to medium Cost associated with backfilling are related to transportation and labor associated with obtaining the clean soil	Yes
		Revegetation	Sod is added to the site over the backfill to restore the area with grass.	Once the area has been backfilled, sod will be added to effectively restore the site to its original condition	Implementation is feasible	Cost are relatively low	Yes
Disposal	On-site disposal	On-site beneficial reuse	After soil is excavated, stockpiled, and classified, it may be staged temporarily on-site and then relocated to other Naval Weapons Station Seal Beach project locations for beneficial reuse (i.e., foundation material for landfill cap)	Small risk from exposure to contaminated soil during handling and transporting	Implementation is feasible if the soil is suitable At this time, it is not anticipated that an appropriate use for the soil will be available	Cost is fairly low Cost associated with transportation of contaminated soil to the disposal site	No
	Off-site disposal	Off-site disposal/recycling	After soil is excavated, stockpiled, and classified, it will be disposed of. Disposal options will be chosen according to the classification of the soil The excavated soil would be transported to an appropriate permitted landfill.	Small risk from exposure to contaminated soil during handling and transporting Small potential for spills in community during transportation of soil	Implementation is feasible The classification of the soil removed determines where the soil needs to be disposed of and the procedures needed to be followed	Cost is medium Cost associated with transportation of contaminated soil to the disposal site Cost associated disposal fees	Yes

Table 4-1
General Response Actions, Technologies, and
Process Options Compared to Screening Criteria

Section 5

IDENTIFICATION AND ANALYSIS OF REMOVAL ACTION ALTERNATIVES

Based on the RAOs presented in Section 3 and the results of the technology screening in Section 4, two alternatives were identified for the removal action at IR Site 73:

- Alternative 1, no action
- Alternative 2, excavation with off-site disposal

Generally, two or more alternatives are evaluated in addition to the no action alternative. Because this removal action only addresses risk to ecological receptors and soil at or near the ground surface, the majority of the technologies considered were eliminated in the technology-screening stage. The no action alternative is evaluated for comparison purposes only. The two alternatives are described and evaluated based on effectiveness, implementability, and cost in the following sections.

Section 4.2 presents some of the factors considered under each screening criterion. To evaluate the effectiveness of the removal alternatives, additional consideration was given to the overall protection of human health and the environment, compliance with ARARs and other guidance, and the long- and short-term effectiveness. Evaluation of the implementability of the removal alternative included consideration of the technical feasibility, commercial availability, administrative feasibility, and public acceptance. Cost evaluation of the removal alternatives was based primarily on estimates calculated using the Remedial Action Cost Engineering and Requirements (RACER) system developed by the U.S. Air Force. Appendix C provides supporting cost information.

5.1 ALTERNATIVE 1, NO ACTION

This alternative is included for comparison purposes only. It does not include any action to remove or prevent exposure to lead-impacted soil.

5.1.1 Effectiveness

This alternative would not reduce the risk of exposure to contaminated soil at the site and would not meet the RAO. Toxicity, mobility, and volume of lead would not be reduced. The no action alternative does not activate ARARs.

5.1.2 Implementability

This alternative is technically feasible because it requires no action. However, this alternative is expected to be unacceptable to the state and the public.

5.1.3 Cost

No costs are associated with this alternative.

5.2 ALTERNATIVE 2, EXCAVATION WITH OFF-SITE DISPOSAL

Alternative 2 involves the excavation of soil containing lead at concentrations above the proposed cleanup goal of 317 mg/kg. Alternative 2 consists of two excavation options: Option A consists of mechanical excavation with monitoring by an archaeological monitor and a Native American monitor, and Option B includes data recovery followed by mechanical excavation with monitoring by an archaeological monitor and a Native American monitor.

Under this alternative, it is assumed that the excavated soil will be transported and disposed at an appropriate permitted landfill. An archaeological monitor and a Native American monitor will be present during all intrusive activities to monitor for cultural resources. The excavation will be backfilled with clean, imported soil and covered with sod to restore the site to original conditions.

5.2.1 Description

Under Alternative 2, soil with lead concentrations above the proposed cleanup goal would be excavated in lifts and disposed at a permitted landfill. Figures 2-5 and 2-6 show the approximate limits of the excavation areas, delineated by the 300 mg/kg isoconcentration lines.

Contaminated soil would be excavated to 1.5 feet bgs in most cases (Figure 2-5). Excavation will continue to a depth of approximately 3 feet bgs in areas where necessary (Figure 2-6). Although the aboveground portion of the water tower is scheduled for removal prior to implementation of this removal action, the footings would not be removed at that time. Therefore, during field activities, the top 1.5 to 3 feet of the water tower footings would be removed (using jackhammer or other appropriate methods) to match the depth of the excavation. Following excavation, clean backfill would be used to restore the site to original grade, and the site will be revegetated with grass.

5.2.1.1 EXCAVATION

Based on current analytical data and interpretation of the extent of soil contamination (Section 2.3), approximately 400 bank cubic yards (bcy) (in-place soil volume) would be excavated at IR Site 73. For Option A, excavation and removal of the contaminated soil would be performed using standard construction equipment (e.g., backhoes and front-end loaders). For Option B, data recovery, including manual excavation by an archaeologist to recover, process, and catalog any potential cultural resources, would first be performed. This will be followed by mechanical excavation of the remaining soil using the same methods as Option A. All excavation activities will be conducted under the observation of an archaeological monitor and a Native American monitor. Although not expected to be necessary, dust monitoring would be initiated if considered necessary. In addition, it is not anticipated that excavation activities would be required in close proximity to Building 206. If this should change, provisions would have to be made to ensure that this building's foundation is not compromised.

Section 5 Identification and Analysis of Removal Action Alternatives

5.2.1.2 CONFIRMATION SOIL SAMPLING

Confirmation sampling would be performed to establish concentrations of lead for soil remaining in place after excavation has been completed. The field sampling design, including proposed locations of confirmation samples, would be included in the project work plan prepared by the RAC. Final confirmation sampling locations would be recorded using surveying techniques. For cost-estimating purposes, it was assumed that one confirmation sample will be collected for every 10- by 10-foot area. Approximately 63 confirmation samples would be collected from around the base and perimeter of the excavation. It is assumed that the confirmation samples will be analyzed for total lead using U.S. EPA Method 6010B.

Analytical results for confirmation sampling would be compared to the proposed cleanup goal. Based on this comparison, a decision to terminate excavation, if feasible, would be made. Additional confirmation sampling would be required if the decision were made to continue excavation.

The RAC may choose to collect samples prior to excavation. This alternate approach may eliminate the potential for multiple excavation/confirmation sampling rounds, but would probably require more sampling.

5.2.1.3 BACKFILLING AND REVEGETATION

When the results of the confirmation sample analyses indicate that the soil containing lead at concentrations exceeding the proposed cleanup goal has been removed, the excavation would be backfilled with clean fill material, compacted to original grade, and revegetated with sod. It is assumed that portions of the irrigation system will need to be repaired or replaced following the removal activities.

5.2.1.4 SOIL PROFILING AND DISPOSAL

Excavated soil would be stockpiled on and covered with plastic (minimum 20-millimeter thickness) until it can be sampled and classified for appropriate disposal. Approximately every 125 loose cubic yards (lcy) (lcy is defined as a 25-percent swell factor of the soil once it is removed from the excavation) of stockpiled soil would be analyzed for total metals and leaching potential of metals using the toxicity characteristic leaching procedure (TCLP) (U.S. EPA Method 1311). This quantity may also be analyzed for contaminant soluble threshold limit concentration values using Cal-EPA waste extraction test (WET) methods. Soil would be transported and disposed at a U.S. EPA-certified disposal facility.

5.2.2 Effectiveness

Alternative 2 is considered to be reliable and effective. Specific discussion of the effectiveness of this alternative is provided in the following sections.

Section 5 Identification and Analysis of Removal Action Alternatives

5.2.2.1 COMPLIANCE WITH ARARs

This alternative would comply with all identified ARARs. The primary ARARs for Alternative 2 include the following:

- RCRA hazardous waste requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Characterization of solid waste as toxic based on TCLP at 40 C.F.R. 261.24(a) and Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)
- National Historic Preservation Act
- Archaeological and Historic Preservation Act
- Archaeological Resources Protection Act
- Cal. Fish & Game Code § 3005(a) regarding the taking of birds and mammals
- RCRA on-site waste generation at Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11, 66264.13(a) and (b)
- RCRA hazardous waste accumulation requirements at Cal. Code Regs. tit. 22, § 66262.34
- RCRA drip pad design at Cal. Code Regs. tit. 22, §§ 66265.443, 66265.444, and 66265.445
- SCAQMD Rule 403 as a potentially applicable federal ARAR

5.2.2.2 LONG-TERM EFFECTIVENESS

Alternative 2 would be very effective over the long term. All lead-impacted soil above the cleanup goal would be removed from the area. This would reduce the potential risk to ecological receptors from lead in soil at the site. In addition, carefully selecting the cleanup goal and requiring an archaeological monitor and a Native American monitor to observe all intrusive activities on-site would protect cultural resources to the extent practicable. Furthermore, the data recovery process included in Option B may result in archaeological findings over the long term. Although implementation of Alternative 2 would temporarily disrupt the local environment, the site would be restored to its original state in a relatively short period of time by placing clean backfill in the excavation and revegetating the area with sod.

Under Alternative 2, for excavated soil disposition, waste handling and landfilling technology is well developed. However, off-site disposal of soil classified as hazardous waste cannot be considered permanent remediation of the contaminated material because the excavated soil would not be treated to reduce lead concentrations. There would be some degree of uncertainty regarding potential future liability if excavated soil were to be disposed of as hazardous waste at an off-site facility.

Section 5 Identification and Analysis of Removal Action Alternatives

5.2.2.3 REDUCTION OF TOXICITY, MOBILITY, AND VOLUME

Alternative 2 would reduce toxicity at the site by physically removing soil impacted by lead at concentrations that may present unacceptable risk to ecological receptors. Excavation and removal of lead-impacted soil would also effectively reduce the potential mobility and volume of contaminants at the site.

5.2.2.4 SHORT-TERM EFFECTIVENESS

According to U.S. EPA guidance, the short-term effectiveness criterion addresses the effects of the alternative during implementation before the removal objectives have been met (U.S. EPA 1993). The primary considerations of this criterion are protection of the community, protection of workers, and environmental impacts that occur during implementation and until the removal action is completed.

Potential exposure and protection procedures for workers engaged in construction activities would be addressed in the Site-Specific Safety and Health Plan. During excavation activities, measures would be taken to reduce fugitive dust emissions, if encountered, and the associated impacts on workers. All workers within the work zone would wear appropriate safety equipment and take appropriate safety measures. The short-term effectiveness would be slightly lower for Option B because the archaeologist and other workers performing the manual excavation would be in close contact with the lead-contaminated soil.

Heavy equipment would conform to Occupational Safety and Health Administration (OSHA) specifications. Excavation areas, soil stockpile areas, and other work areas would be properly delineated to limit access to authorized personnel. Only authorized and trained personnel would operate the heavy equipment.

If soil transport by truck is considered necessary, some or all of the following safety measures will be implemented to limit short-term risks. The trucks may be covered with tarps and their load height limited. Truck traffic could be limited to daylight, off-peak hours. Emergency spill containment and cleanup contingency planning should also be incorporated into the project work plan to minimize the potential of exposure to impacted soil from traffic-related accidental spillage.

5.2.3 Implementability

This alternative can be readily implemented at areas where no surface structures are located. The following subsections further discuss the implementability of this alternative.

5.2.3.1 TECHNICAL FEASIBILITY

Alternative 2 is technically feasible and does not require special techniques, material, permits, or labor for excavation. Conventional earth-moving equipment can be used during the mechanical excavation, off-site disposal activities, and backfilling of the excavation. The site is accessible and relatively flat. In addition, if subsurface utilities

Section 5 Identification and Analysis of Removal Action Alternatives

are encountered, they will be temporarily rerouted during excavation and then restored after completion of the removal action.

The actual volume of soil that can be feasibly excavated would be contingent on field conditions, including foundation considerations, utilities, pipes, and other subsurface features. Depth to groundwater, approximately 15 feet bgs, is not expected to be a factor during excavation activities. Excavation would be conducted in a manner that assures worker safety.

5.2.3.2 ADMINISTRATIVE FEASIBILITY

During the implementation of Alternative 2, it may be necessary to temporarily block off portions of the parking lot and limit access near Building 206. Although this may inconvenience some base personnel, it is not expected to impair base operations and activities.

Under CERCLA, only substantive provisions of requirements identified as ARARs apply to actions conducted on-site. Administrative or procedural requirements such as permits are not required. However, because this alternative may involve the handling of hazardous waste off-site, administrative requirements and regulations, such as DOT hazardous waste manifests, must be met. Alternative 2 is considered administratively feasible.

5.2.3.3 AVAILABILITY OF SERVICES AND MATERIALS

The removal of contaminated soil by excavation is accomplished by using a variety of conventional and readily available equipment, such as backhoes and front-end loaders. This alternative can be implemented using standard transportation and disposal practices. Skilled workers, equipment, and material are readily available.

Several U.S. EPA-certified disposal facilities are located in California and Utah. These facilities will accept RCRA hazardous waste, Cal-EPA non-RCRA hazardous waste, nonhazardous waste, and inert material. Transportation of the contaminated soil to these facilities would be provided by an appropriately licensed waste-hauling company.

5.2.3.4 STATE AND COMMUNITY ACCEPTANCE

It is anticipated that Alternative 2, Option B, will receive acceptance from the state regulatory agencies and the local community. State and community concerns were addressed following the public comment period and review of the EE/CA by the RAB, Cal-EPA, DTSC, RWQCB Santa Ana Region, and the California Integrated Waste Management Board. Limitations arising from public comments and state review were considered at that time. It is unlikely that Alternative 2, Option A, will be acceptable to the state and community.

5.2.4 Cost

The cost estimates for Alternative 2 were developed based on the estimated extent of soil containing lead at concentrations above the cleanup goal (Section 3.5). A project start

Section 5 Identification and Analysis of Removal Action Alternatives

date of July 2002 and project duration of 1 month were assumed for the cost estimate. The cost evaluation is based on estimates for capital costs and include costs for design, construction, equipment, and mobilization. There are no annual operations and maintenance costs. Table 5-1 describes the major cost items and the estimated costs. Appendix C contains supporting cost information.

The cost estimate was performed using vendor quotes and the RACER system developed by the U.S. Air Force. RACER cost models are based on generic engineering solutions for environmental projects, technologies, and processes. These solutions are derived from historical project information, government laboratories, construction management agencies, vendors, contractors, and engineering analysis. For this alternative, RACER cost estimates have been made site specific by using cost information from similar projects conducted at NAVWPNSTA Seal Beach (i.e., laboratory analyses costs during CLEAN site characterization activities and transportation and disposal costs for soil at a Class I landfill in Utah). To allow for slowed operations due to inspections for cultural resources, it is assumed that the excavation will be conducted in 6-inch lifts, and professional labor has been estimated at a high rate. During implementation of this removal alternative, cost savings may be accomplished by using clean, on-station fill materials generated during other removal/remedial actions, if available.

This cost estimate is for guidance in project evaluation and implementation. It was prepared from information available at the time of publication. The final cost of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final project schedule, the company selected for final project implementation, and other variable factors. As a result, the final project cost would vary from the estimates presented herein. The final project cost would also depend on the actual volume of soil removed.

Section 5 Identification and Analysis of Removal Action Alternatives

Table 5-1
Cost Estimate for Alternative 2, Excavation With Off-Site Disposal

Description	Cost	
	OPTION A	OPTION B
Direct capital costs		
Mobilization/demobilization	\$2,300	\$2,300
Clear and grub (0.15 acre)	\$500	\$500
Mechanical excavation (for cost estimating purposes, assume 400 [Option A] and 340 [Option B] bank cubic yards) and backfill (500 lcy)	\$8,800	\$8,200
Data recovery (Option B only)	— ^a	\$125,000
Load and transport excavated material for disposal (500 lcy)	\$31,300	\$31,300
Confirmation soil sampling (one sample per 10- by 10-foot area + 20 percent for QC = 76 samples analyzed for total lead (U.S. EPA Method 7000 series))	\$4,900	\$4,900
Profile soil sampling for disposal (one composite sample per 125 lcy = 4 samples analyzed for total metals [U.S. EPA Method 6010B/7000 series], TCLP metals [U.S. EPA Method 1311 and U.S. EPA Method 6010B/7000 series], and STLC [Cal-EPA WET])	\$2,100	\$2,100
Revegetate with sod and repair sprinkler system (0.2 acre)	\$12,200	\$12,200
Professional labor (project oversight)	\$8,100	\$8,100
Total direct capital costs (based on January 2001 cost database)	\$70,200	\$194,600
Indirect costs (e.g., overhead, profit) (based on January 2001 cost database)	\$39,600	\$109,800
Contingency^b	\$22,000	\$61,000
Escalation^c	\$6,000	\$16,600
TOTAL COST (start date of July 2002)	\$137,800	\$382,000
NET PRESENT VALUE (January 2001 dollars)	\$128,800	\$357,000

Notes:

- ^a not applicable
- ^b a 20 percent contingency has been added to cover cost increases that may result from unforeseen conditions and changes that typically occur on removal and remediation projects
- ^c escalation modifies the costs in the Remedial Action Cost Engineering and Requirements database from January 2001 to the assumed project start date of July 2002

Acronyms/Abbreviations:

Cal-EPA – California Environmental Protection Agency
lcy – loose cubic yard
QC – quality control
STLC – soluble threshold limit concentration
TCLP – toxicity characteristic leaching procedure
U.S. EPA – United States Environmental Protection Agency
WET – (Cal-EPA) Waste Extraction Test

Section 6

COMPARATIVE ANALYSIS OF REMOVAL ACTION ALTERNATIVES

In this section, the alternatives analyzed in Section 5 are compared to evaluate their relative performance in relation to each of three criteria. The criteria used in this comparison are the same as those used to analyze the alternatives: effectiveness, implementability, and cost.

6.1 EFFECTIVENESS OF ALTERNATIVES

Effectiveness was evaluated based on the overall protection of human health and the environment (through assessment of long-term effectiveness and permanence, compliance with ARARs, and short-term effectiveness) and reduction of toxicity, mobility, or volume through treatment. Alternative 2, excavation with off-site disposal, is expected to be effective in meeting the RAOs because removal of lead-impacted soil above the cleanup goal would be directly observed and confirmed by soil sampling. Under Alternative 2, there is the potential for disturbance of cultural resources. As a result, the removal volume would be limited to the extent practicable, and an archaeological monitor and a Native American monitor would be on-site during all intrusive activities. Under Alternative 2, Option B, data recovery would be performed prior to mechanical excavation to increase scientific understanding and enhance public appreciation and awareness of the resource. Although Option B of Alternative 2 may pose slightly increased risk to workers during data recovery, the use of experienced personnel trained in hazardous materials handling and conducting work in accordance with the project health and safety plan will greatly reduce this risk. Alternative 1, no action, would not reduce the toxicity, mobility, or volume of lead at IR Site 73.

6.2 IMPLEMENTABILITY OF ALTERNATIVES

Both alternatives are considered implementable. The technical feasibility is generally similar for both alternatives. Required materials and services would be available for both technologies.

Other implementability criteria, such as state and public acceptance, tend to have greater variability between the two alternatives. Alternative 2, Option B, is expected to be acceptable to regulatory agencies and the general public. Alternative 2, Option A, is unlikely to be acceptable to regulatory agencies and the general public. Alternative 1, no action, would not be an acceptable alternative to the DON, regulatory agencies, or the public.

6.3 COST

Table 6-1 summarizes the total estimated costs to implement each alternative and includes capital costs and indirect costs. These costs are shown as net present value. Under Alternative 2, there are no long-term operation and maintenance (O&M) costs. Under Alternative 2, Option A is more cost-effective than Option B. Alternative 1, of course, has the lowest cost because no action to reduce the exposure of ecological receptors to lead-impacted soil would be implemented. However, as noted previously,

Section 6 Comparative Analysis of Removal Action Alternatives

Table 6-1
Total Costs of Removal Action Alternatives for IR Site 73

Alternatives	Cost
Alternative 1, no action	\$0
Alternative 2, excavation with off-site disposal	
Option A, mechanical excavation with monitoring by an archaeological monitor and a Native American monitor	\$128,800
Option B, data recovery followed by mechanical excavation with monitoring by an archaeological monitor and a Native American monitor	\$357,000

Acronym/Abbreviation:

IR – Installation Restoration (Program)

this alternative does not comply with all RAOs for this project. Alternative 2 is effective in reducing the risk to ecological receptors.

Section 7

RECOMMENDED REMOVAL ACTION ALTERNATIVE

This EE/CA was performed in accordance with current U.S. EPA and DON guidance documents for a non-time-critical removal action under CERCLA. The purpose of this EE/CA was to identify and analyze removal action alternatives to reduce the risk to ecological receptors from lead-impacted soil at IR Site 73. Because most of the potential technologies and process options were screened out, only two alternatives were identified and evaluated. Alternative 1 (no action) and Alternative 2 (excavation with off-site disposal).

Based on comparative analyses of the removal action alternatives discussed in Section 6, the recommended removal action is Alternative 2, Option B. Alternative 2, Option B, involves complete removal of soil containing lead concentrations above the cleanup goal. Under Alternative 2, Option B, data recovery by an archaeologist to recover, process, and catalog any potential cultural resources would first be performed. Removal of the remaining lead-impacted soil would be achieved using earth-moving machinery to excavate the soil. An archaeological monitor and a Native American monitor would be on-site during all intrusive activities to check for cultural resources. Confirmation soil samples would be collected to verify that all soil with reported lead concentrations above the cleanup goal had been removed. Excavated soil would be transported to a permitted landfill for disposal. The site would be backfilled with clean soil, either imported or from another on-station location, followed by revegetation with grass. A project work plan will be prepared by the RAC contractor that will take into consideration safety and health requirements and standard operating procedures.

This alternative is recommended because it greatly reduces risks to ecological receptors by completely removing soil with lead concentrations above the cleanup goal. This alternative meets the RAOs, complies with ARARs and other guidance, and is technically and administratively feasible, and the materials to implement this alternative are commercially available. The cost for this alternative is comparable to similar removal actions previously conducted at this facility, and under this alternative there would be no unforeseen future costs. This alternative is expected to be acceptable to the state and community. Because the recommended removal action will cost less than \$1 million, an action memorandum/removal action work plan will be prepared to document the final decision.

Section 7 Recommended Removal Action Alternative

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Section 8

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APPENDIX A

REFINED ECOLOGICAL RISK ASSESSMENT

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ACRONYMS/ABBREVIATIONS

bgs	below ground surface
BTAG	Biological Technical Assistance Group
CLT	central limit theorem
COPC	chemical of potential concern
CRDL	contract-required detection limit
DTSC	(California Environmental Protection Agency) Department of Toxic Substances Control
EE/CA	engineering evaluation/cost analysis
EFA	Engineering Field Activity
EPC	exposure-point concentration
ERA	ecological risk assessment
FSI	focused site inspection
HQ	hazard quotient
IDL	instrument detection limit
IR	Installation Restoration (Program)
kg	kilogram
LOAEL	lowest-observable-adverse-effect level
mg/kg	milligrams per kilogram
mg/kg-day	milligrams per kilogram per day
NAVWPNSTA	Naval Weapons Station
NOAEL	no-observable-adverse-effect level
PRG	preliminary remediation goal
SUF	site use factor
SWDIV	Southwest Division Naval Facilities Engineering Command
TRV	toxicity reference value
UCL	upper confidence limit
ULBV	upper limit background value
U.S. EPA	United States Environmental Protection Agency

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Appendix A

REFINED ECOLOGICAL RISK ASSESSMENT

This appendix summarizes the previous screening level ecological risk assessment (ERA) performed at Installation Restoration (IR) Program Site 73, Naval Weapons Station Seal Beach. The risk assessment is then refined to include additional site-specific exposure estimates to calculate refined preliminary remediation goals (PRGs). The refined PRGs are evaluated to recommend a cleanup goal.

A1 SUMMARY AND CONCLUSIONS OF FOCUSED SITE INVESTIGATION PHASE II SCREENING LEVEL ERA

A screening level ERA was performed for contaminants present in soil at IR Site 73 (CH2M Hill 2000). Except for lead, contaminants were found to present no unacceptable ecological risk.

The following description of IR Site 73 is summarized from the draft Focused Site Investigation (FSI) Phase II Report (CH2M Hill 2000). Based on the area around the water tower that has been sampled, the approximate dimensions of the site are 655 feet by 360 feet, representing 235,800 square feet (5.41 acres, 2.19 hectares). The water tower has undergone sandblasting and repainting since 1944. Paint chips from the sandblasting are suspected as the source of lead in the nearby soils. The area is generally flat with a lawn that is mowed and maintained weekly. The soils are primarily silty clay. Based on information provided in the FSI Phase II Report, the depth to groundwater is at least 15 feet below ground surface (bgs). IR Site 73 is located within a known archaeological site, CA-ORA-322/1,118. An archaeological investigation in 1997 confirmed the significance of the cultural resources (Ogden 1997).

The FSI Phase II Report (CH2M Hill 2000) recommended a cleanup goal of 41.6 milligrams per kilogram (mg/kg) for lead at Site 73, based on the results of the screening level ERA. This cleanup goal was selected because it was the lowest PRG for the ecological receptors that were modeled (Table A1-1).

A2 DEVELOPMENT OF REFINED PRELIMINARY REMEDIATION GOALS FOR SOIL LEAD

The ERA was refined to include consideration of additional ecological receptors: raccoon (mammal, omnivore), American robin (bird, omnivore), and red fox (mammal, carnivore); plants; soil invertebrates; and soil microbes. Although the red fox was relocated to an off-station location several years ago, it was used in this refined ERA to represent mammalian carnivore species. Addition of supplemental ecological receptors provides for a broader evaluation of the ecosystem that may be at the site. PRGs for soil lead were developed from predictive exposure scenarios for these ecological receptors. Refined PRGs, based on a validation study and site-specific measurements of effects, were not prepared. No investigations of site-specific effects were conducted. Therefore, PRGs based on predictive exposure scenarios are expected to be conservative and would likely underestimate validation study-based PRGs.

Table A1-1
Summary of IR Site 73 Screening Level PRGs Presented in FSI Phase II Report

Preliminary Remediation Goal (mg/kg)	Toxicity Reference Value (mg/kg-day)	Ecological Receptor Species	TRV Source
41.6	0.285	Mourning dove bird - herbivore	0.19 mg/kg-day Japanese quail NOAEL (Edens et al. 1976) $\times 1.5$ for bioavailability ^a
509	1.6	Ground squirrel mammal - herbivore	8 mg/kg-day rat NOAEL (Palmer et al. 1978) $\times 0.2$ for taxonomic factor ^b
1,380	3.85	American kestrel bird - carnivore	3.85 mg/kg-day American kestrel NOAEL (Pattee 1984)

Notes:

- ^a Edens et al. (1976) evaluated by CH2M Hill (2000), FSI Phase II, NAVWPNSTA Seal Beach
^b Palmer et al. (1978) listed by CH2M Hill (2000), but no reference provided; possible reference may be Azar et al. (1973), which provides appropriate data

Acronyms/Abbreviations:

FSI – focused site investigation
IR – Installation Restoration (Program)
mg/kg – milligrams per kilogram
mg/kg-day – milligrams per kilogram per day
NAVWPNSTA – Naval Weapons Station
NOAEL – no-observable-adverse-effect level
PRG – preliminary remediation goal

A2.1 Review of Existing Soil Lead Data

The 159 samples analyzed for soil lead concentration that were presented in the FSI Phase II Report (CH2M Hill 2000) are listed in Table A2-1. As described in the FSI Phase II Report, duplicate samples were averaged, providing a data set of 142 values, 106 of surface soil (0.5 to 1.0 feet bgs) and 36 of subsurface soil (2.0 to 2.5 feet bgs). Soil lead concentrations at the site ranged from 2.7 to 1,360 mg/kg. For comparison, the stationwide upper limit background value (ULBV) is 35.7 mg/kg (SWDIV 1997). Spatial distribution of lead concentrations in soil is shown on Figure A2-1 for surface soil and on Figure A2-2 for subsurface soil. Summary statistics were calculated using Microsoft® Excel software (Table A2-2). Probability density curves and Shapiro-Wilk's *W* test for normally distributed data were prepared with Analyze-it for Microsoft Excel.

Review of the total data set indicates that the lead results are positively skewed and do not fit a probability density function of a normal distribution ($W=0.4173$, $P<0.0001$) (Figure A2-3). The data were log-transformed and again evaluated for distribution characteristics (Figure A2-4). The log-transformed data are not normally distributed

Appendix A Refined Ecological Risk Assessment

Table A2-1
Lead Concentrations From FSI Phase II
(concentrations reported in milligrams per kilogram)

Sample Location	Sample ID	Depth Interval (feet bgs)	Lead
01	73B01SA0-1	0.5-1.0	23.2
01	73B01SA0-2	2.0-2.5	4.2
02	73B02SA0-1	0.5-1.0	5.9
02	73B02SA0-2	2.0-2.5	4
02	73B02SA1-1	0.5-1.0	78.1
03	73B03SA0-1	0.5-1.0	13
03	73B03SA0-2	2.0-2.5	6.9
03	73B03SA1-2	2.0-2.5	4.1
04	73B04SA0-1	0.5-1.0	8
04	73B04SA0-2	2.0-2.5	572
05	73B05SA0-1	0.5-1.0	19.7
05	73B05SA0-2	2.0-2.5	4.4
06	73B06SA0-1	0.5-1.0	233
06	73B06SA0-2	2.0-2.5	5.4
07	73B07SA0-1	0.5-1.0	450
07	73B07SA0-1DL	0.5-1.0	NA
07	73B07SA0-2	2.0-2.5	5.3
08	73B08SA0-1	0.5-1.0	1360
08	73B08SA0-2	2.0-2.5	9.3
09	73B09SA0-1	0.5-1.0	101
09	73B09SA0-2	2.0-2.5	5.8
10	73B10SA0-1	0.5-1.0	118
10	73B10SA0-2	2.0-2.5	5.4
11	73B11SA0-1	0.5-1.0	64.1
11	73B11SA0-2	2.0-2.5	4.7
12	73B12SA0-1	0.5-1.0	6.1
12	73B12SA0-2	2.0-2.5	6.6
12	73B12SA1-1	0.5-1.0	8.8
13	73B13SA0-1	0.5-1.0	49.4
13	73B13SA0-2	2.0-2.5	4.9
14	73B14SA0-1	0.5-1.0	5.9
14	73B14SA0-2	2.0-2.5	239
15	73B15SA0-1	0.5-1.0	107
15	73B15SA0-2	2.0-2.5	5.8
16	73B16SA0-1	0.5-1.0	108

(table continues)

Appendix A Refined Ecological Risk Assessment

Table A2-1 (continued)

Sample Location	Sample ID	Depth Interval (feet bgs)	Lead
16	73B16SA0-2	2.0-2.5	5.9
17	73B17SA0-1	0.5-1.0	8.4 N*
17	73B17SA0-2	2.0-2.5	5.5 N*
18	73B18SA0-1	0.5-1.0	4.7
18	73B18SA0-2	2.0-2.5	11.2
18	73B18SA1-2	2.0-2.5	18.6
19	73B19SA0-1	0.5-1.0	16.7
19	73B19SA0-2	2.0-2.5	3.8
20	73B20SA0-1	0.5-1.0	24.9 N*
20	73B20SA0-2	2.0-2.5	9.4 N*
21	73B21SA0-1	0.5-1.0	24.4 N*
21	73B21SA0-2	2.0-2.5	6.6 N*
22	73B22SA0-1	0.5-1.0	166 N*
22	73B22SA0-2	2.0-2.5	63.7 N*
22	73B22SA1-2	2.0-2.5	12.2 J
23	73B23SA0-1	0.5-1.0	6.1
23	73B23SA0-2	2.0-2.5	67.7
24	73B24SA0-1	0.5-1.0	46.3
24	73B24SA0-2	2.0-2.5	4.8
25	73B25SA0-1	0.5-1.0	21.6
25	73B25SA0-2	2.0-2.5	4.5
26	73B26SA0-1	0.5-1.0	107 N*
26	73B26SA0-2	2.0-2.5	5.6 N*
27	73B27SA0-1	0.5-1.0	53.8 N*
27	73B27SA0-2	2.0-2.5	5.7 N*
27	73B27SA1-1	0.5-1.0	192 N*
28	73B28SA0-1	0.5-1.0	48.2
28	73B28SA0-2	2.0-2.5	5.5
29	73B29SA0-1	0.5-1.0	107
29	73B29SA0-2	2.0-2.5	2.7
30	73B30SA0-1	0.5-1.0	36.2
30	73B30SA0-2	2.0-2.5	5.3
30	73B30SA1-1	0.5-1.0	66.1
31	73B31SA0-1	0.5-1.0	4.5
31	73B31SA0-2	2.0-2.5	39.4
32	73B32SA0-1	0.5-1.0	32.7
32	73B32SA0-2	2.0-2.5	5.1

(table continues)

Appendix A Refined Ecological Risk Assessment

Table A2-1 (continued)

Sample Location	Sample ID	Depth Interval (feet)	Lead
33	73B33SA0-1	0.5-1.0	5.7
33	73B33SA0-2	2.0-2.5	73.6
33	73B33SA1-2	2.0-2.5	7.7
34	73B34SA0-1	0.5-1.0	72.8
34	73B34SA0-2	2.0-2.5	10.2
35	73B35SA0-1	0.5-1.0	184 N*
35	73B35SA0-2	2.0-2.5	5.7 N*
36	73B36SA0-1	0.5-1.0	421 *
37	73B37SA0-1	0.5-1.0	11.4 *
38	73B38SA0-1	0.5-1.0	8.8 *
39	73B39SA0-1	0.5-1.0	88.7 *
40	73B40SA0-1	0.5-1.0	147 *
41	73B41SA0-1	0.5-1.0	21.4 *
42	73B42SA0-1	0.5-1.0	88.7 *
42	73B42SA0-1DL	0.5-1.0	NA
42	73B42SA0-2	2.0-2.5	4 *
43	73B43SA0-1	0.5-1.0	156 J
44	73B44SA0-1	0.5-1.0	119 J
45	73B45SA0-1	0.5-1.0	109 *
46	73B46SA0-1	0.5-1.0	128 J
47	73B47SA0-1	0.5-1.0	11.7 *
48	73B48SA0-1	0.5-1.0	118 *
48	73B48SA1-1	0.5-1.0	106 *
49	73B49SA0-1	0.5-1.0	10
50	73B50SA0-1	0.5-1.0	19.6
52	73B52SA0-1	0.5-1.0	10.8
53	73B53SA0-1	0.5-1.0	83.2
54	73B54SA0-1	0.5-1.0	16.9
58	73B58SA0-1	0.5-1.0	27.2
59	73B59SA0-1	0.5-1.0	32.5
60	73B60SA0-1	0.5-1.0	243
61	73B61SA0-1	0.5-1.0	9.6 J
62	73B62SA0-1	0.5-1.0	39.2
63	73B63SA0-1	0.5-1.0	9.8 N
64	73B64SA0-1	0.5-1.0	117
65	73B65SA0-1	0.5-1.0	10.6 N
66	73B66SA0-1	0.5-1.0	26.2
67	73B67SA0-1	0.5-1.0	177 N

(table continues)

Appendix A Refined Ecological Risk Assessment

Table A2-1 (continued)

Sample Location	Sample ID	Depth Interval (feet)	Lead
68	73B68SA0-1	0.5-1.0	75.2
69	73B69SA0-1	0.5-1.0	20.7
70	73B70SA0-1	0.5-1.0	63.2
71	73B71SA0-1	0.5-1.0	135
72	73B72SA0-1	0.5-1.0	95.3
73	73B73SA0-1	0.5-1.0	531
74	73B74SA0-1	0.5-1.0	41.2 N
84	73B84SA0-1	0.5-1.0	41.2 N
86	73B86SA0-1	0.5-1.0	86.5
88	73B88SA0-1	0.5-1.0	74.5
89	73B89SA0-1	0.5-1.0	62.5
90	73B90SA0-1	0.5-1.0	26.5
91	73B91SA0-1	0.5-1.0	55.8
92	73B92SA0-1	0.5-1.0	57.4
93	73B93SA0-1	0.5-1.0	18
96	73B96SA0-1	0.5-1.0	68.2
98	73B98SA0-1	0.5-1.0	28.8
99	73B99SA0-1	0.5-1.0	96.2
99	73B99SA0-1DI	0.5-1.0	NA
100	73B100SA0-1	0.5-1.0	65.2
101	73B101SA0-1	0.5-1.0	47.4
102	73BS102A0-1	0.5-1.0	82.6
103	73B103SA0-1	0.5-1.0	59
104	73B104SA0-1	0.5-1.0	47.7
105	73B105SA0-1	0.5-1.0	42.2
106	73B106SA0-1	0.5-1.0	42.9
108	73B108SA0-1	0.5-1.0	59.8
110	73B110SA0-1	0.5-1.0	52.4
112	73B112SA0-1	0.5-1.0	44.1
113	73B113SA0-1	0.5-1.0	52.3
113	73B113SA1-1	0.5-1.0	38.3
114	73B114SA0-1	0.5-1.0	43.7
114	73B114SA1-1	0.5-1.0	52.1
115	73B115SA0-1	0.5-1.0	37.5
116	73B116SA0-1	0.5-1.0	36.6
116	73B116SA1-1	0.5-1.0	47.8
117	73B117SA0-1	0.5-1.0	54.8
117	73B117SA1-1	0.5-1.0	32.3

(table continues)

Appendix A Refined Ecological Risk Assessment

Table A2-1 (continued)

Sample Location	Sample ID	Depth Interval (feet)	Lead
118	73B118SA0-1	0.5-1.0	38.1
119	73B119SA0-1	0.5-1.0	38.3
119	73B119SA1-1	0.5-1.0	19.5
120	73B120SA0-1	0.5-1.0	46.9
121	73B121SA0-1	0.5-1.0	55.2
122	73B122SA0-1	0.5-1.0	33.5
122	73B122SA1-1	0.5-1.0	32.7
123	73B123SA0-1	0.5-1.0	40.8
124	73B124SA0-1	0.5-1.0	34
124	73B124SA1-1	0.5-1.0	31.6
125	73B125SA0-1	0.5-1.0	38.2
126	73B126SA0-1	0.5-1.0	43.1
127	73B127SA0-1	0.5-1.0	65.2
127	73B127SA1-1	0.5-1.0	52.1

Source:
CH2M Hill 2000

Acronyms/Abbreviations:

bgs – below ground surface
CRDL – contract required detection limit
FSI – focused site investigation
IDL – instrument detection limit
NA – not analyzed

Data Qualifiers:

* – duplicate analysis not within control limits
J – estimated (below CRDL and above IDL)
N – spiked sample recovery not within control limits

Appendix A Refined Ecological Risk Assessment

($W=0.9610$, $P=0.0005$). A bi-modal pattern is apparent in the log-transformed data, representing a population of surface soil lead concentration and a population of subsurface soil lead concentration. Separate evaluation of the surface soil data and the subsurface soil data indicates that the log-transformed surface soil data are normally distributed ($W=0.9819$, $P<0.1592$ [Figure A2-5]), but the log-transformed subsurface soil data are not normally distributed ($W=0.6850$, $P<0.0001$ [Figure A2-6]).

The arithmetic mean is the desired statistic to represent the exposure-point concentration (EPC). To account for uncertainties related to estimating the arithmetic mean, the 95th percent upper confidence limit (95 UCL) of the mean is used as the EPC. Calculation of the 95 UCL depends on the distribution of the data and the number of data values (n) available; however, when n is greater than 100, the UCL calculations produce similar estimates (U.S. EPA 1997a). The 95 UCL calculations used in this report are presented below:

95 UCL Calculation

Description

$$\bar{x} + t_{(1-\alpha, n-1)} \left(\frac{s}{\sqrt{n}} \right)$$

Using Student's- t distribution. For use when data fit normal distribution (Gilbert 1987; U.S. EPA 1992, 1997a)

$$\bar{x} + z_{(1-\alpha)} \left(\frac{s}{\sqrt{n}} \right)$$

Using standard normal distribution. For use when distribution of the data is unknown or when n is large (>30) (Gilbert 1987, U.S. EPA 1997a). Central Limit Theorem (CLT) (U.S. EPA 1997a).

$$\bar{x} + z_{(1-\alpha \text{ adj})} \left(\frac{s}{\sqrt{n}} \right)$$

where:

Using standard normal distribution with adjustment for skewness of data. For use when distribution of the data is unknown or when n is large (>30) (U.S. EPA 1997a). Adjusted CLT (Chen 1995, U.S. EPA 1997a).

$$z_{(1-\alpha \text{ adj})} = z_{(1-\alpha)} + \frac{\hat{k}_3}{6\sqrt{n}} (1 + 2z_{(1-\alpha)}^2)$$

$$e^{\left(\bar{x} + 0.5s^2 + \frac{sH}{\sqrt{n-1}} \right)}$$

Uses Land's H -statistic (Gilbert 1987). For use when data fit lognormal distribution (Gilbert 1987, U.S. EPA 1992).

where

\bar{x} = arithmetic mean

t = Student's- t distribution

$(1 - \alpha)$ = one-tail quantile of distribution

s = standard deviation of sample

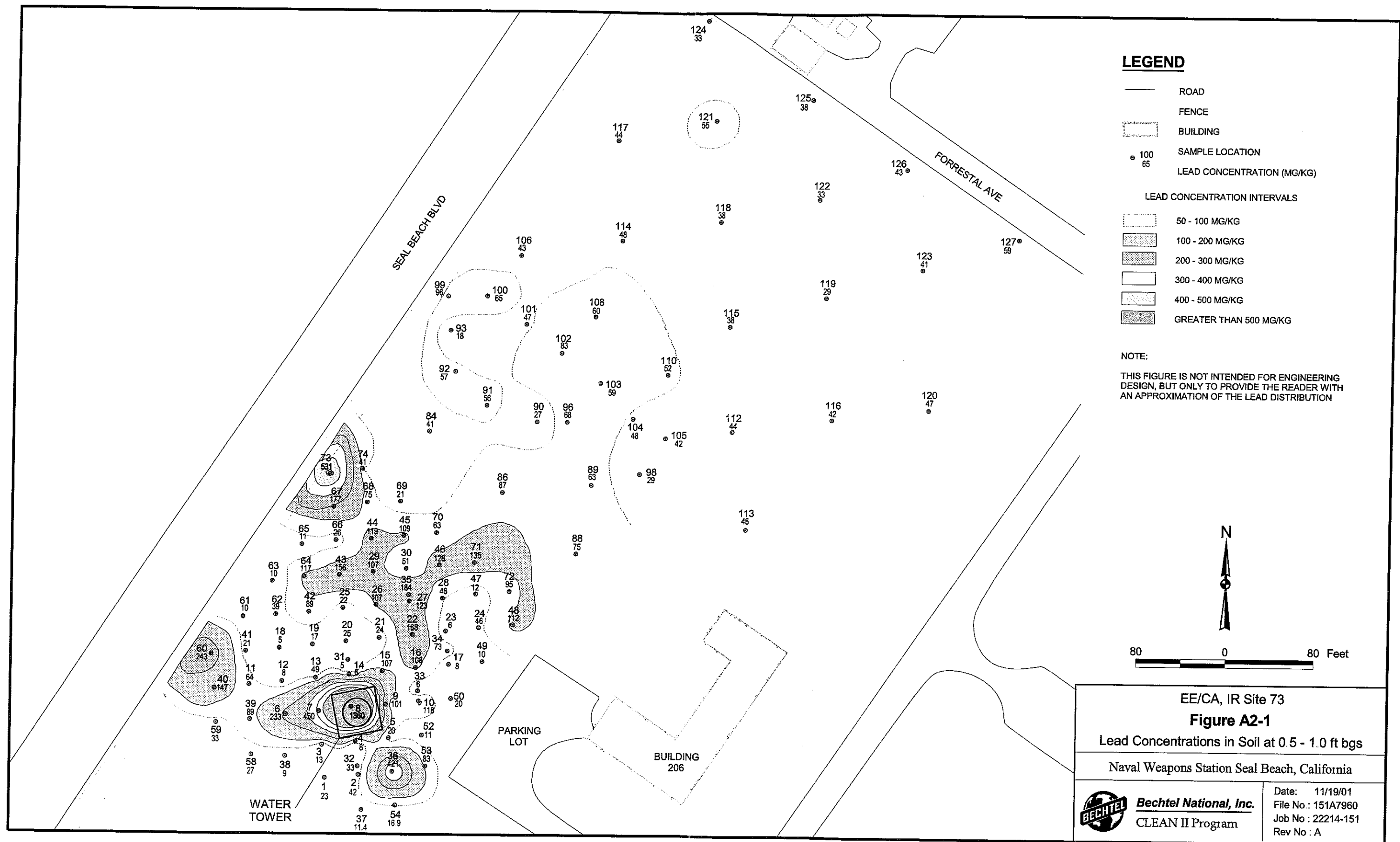
n = sample size

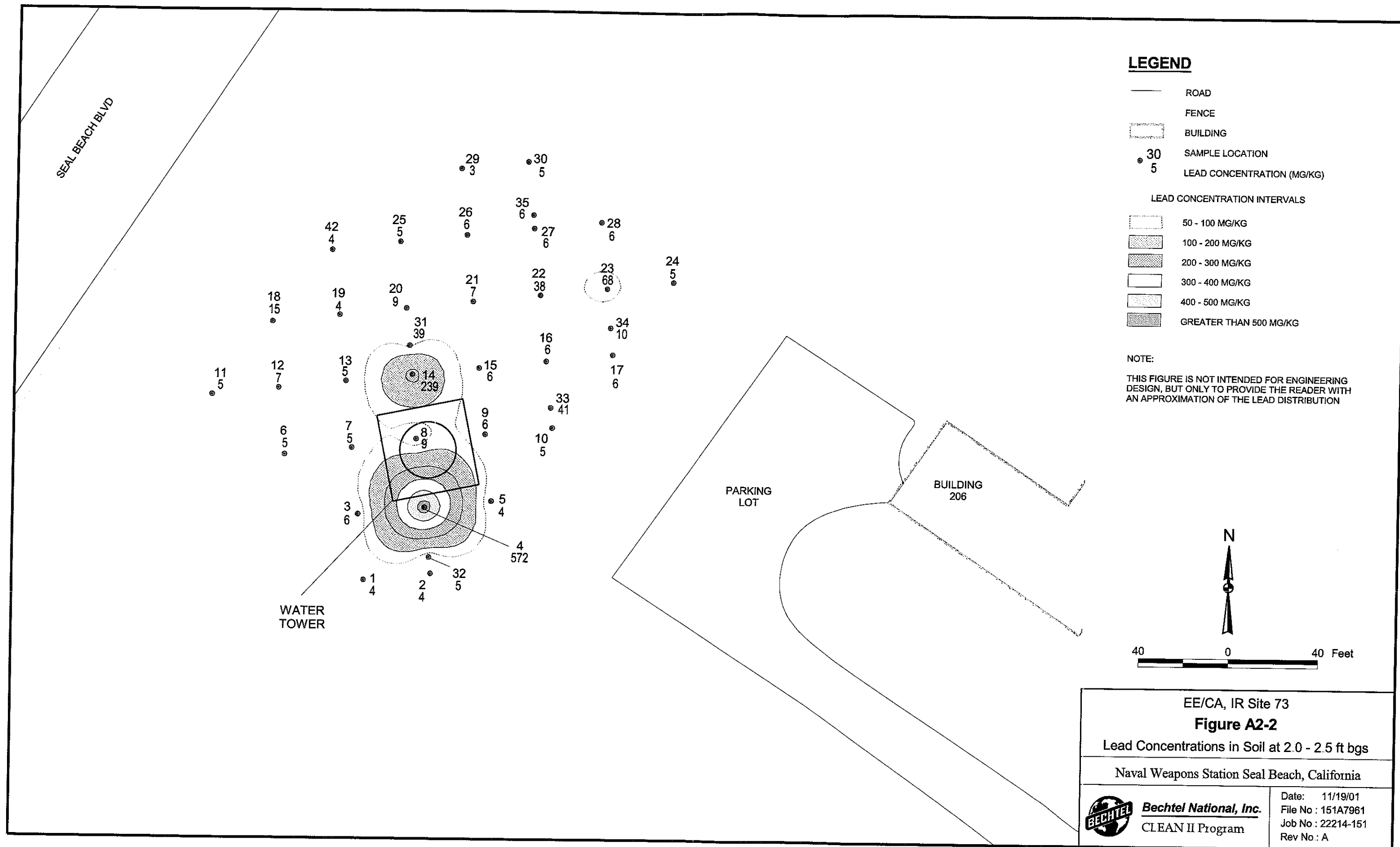
z = standard normal distribution

\hat{k}_3 = coefficient of skewness

e = base of natural logarithm

H = Land's H -statistic





EE/CA, IR Site 73	
Figure A2-2	
Lead Concentrations in Soil at 2.0 - 2.5 ft bgs	
Naval Weapons Station Seal Beach, California	
Bechtel National, Inc. CLEAN II Program	Date: 11/19/01 File No: 151A7961 Job No: 22214-151 Rev No: A

Appendix A Refined Ecological Risk Assessment

Table A2-2
Summary Statistics for Soil Lead Data

	Surface and Subsurface Soil Samples	Surface Soil Samples	Subsurface Soil Samples
Number of data values	142	106	36
Number of detected data values	142	106	36
Maximum	1,360	1,360	572
Minimum	2.7	4.5	2.7
95th percentile	231	221	111
Median	38.7	46.6	5.6
95 UCL of median	43.0	55.1	5.8
Skewness	6.3	6.4	4.9
Distribution	Nonparametric	Lognormal	Nonparametric
Shapiro-Wilk <i>p</i> value			
test fit for normal distribution	< 0.0001	< 0.0001	< 0.0001
Shapiro-Wilk <i>p</i> value			
test fit for lognormal distribution	0.0005	0.1592	< 0.0001
Mean, arithmetic	70.0	82.8	32.6
Standard deviation	141	151	101
Coefficient of variation, percent	201	182	310
95 UCL of mean, Student's- <i>t</i> distribution	89.6	107	61.0
95 UCL of mean, CLT	89.5 ^a	107 ^a	60.3 ^a
95 UCL of mean, adjusted CLT	96.2	117	74.8
95 UCL of mean, Land's <i>H</i> -statistic	— ^b	— ^b	29.8
EPC	89.5	107	60.3

Notes:

^a best estimate of 95 UCL of mean for this data set

^b not calculated, out of range of *H*-statistic table values (Gilbert 1987)

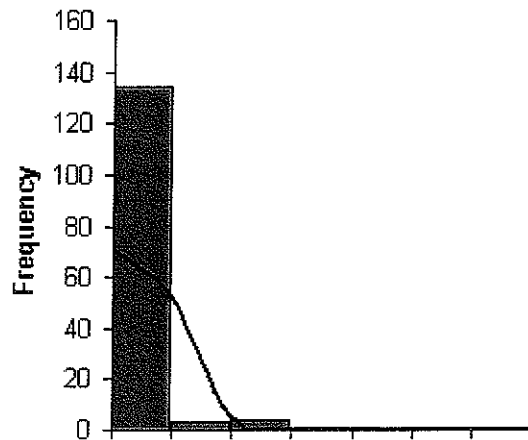
Acronyms/Abbreviations:

CLT – central limit theorem

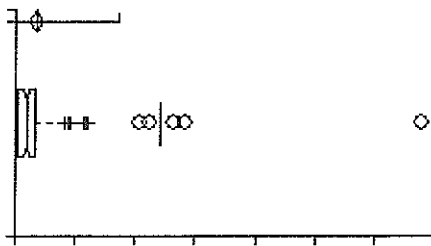
EPC – exposure-point concentration

UCL – upper confidence limit

Lead Avg Dup (mg/kg)

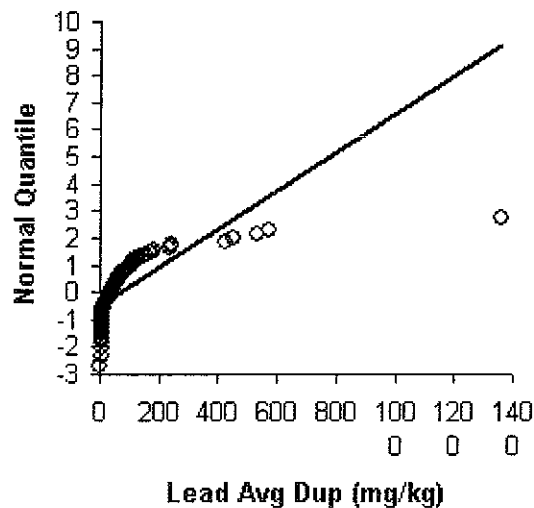


n	142
Mean	70.042
95% CI	46.632 to 93.452
Variance	19911.7041
SD	141.1088
SE	11.8416
CV	201%



Median	38.700
96.4% CI	26.200 to 44.100
Range	1357.3
IQR	60.025

Percentile	
2.5th	4.000
25th	9.325
50th	38.700
75th	69.350
97.5th	484.425



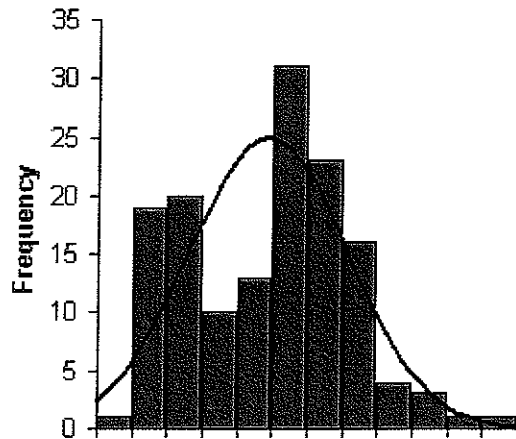
	Coefficient	p
Shapiro-Wilk	0.4173	<0.0001
Skewness	6.3365	<0.0001
Kurtosis	51.3893	<0.0001

Figure A2-3
Soil Lead Distribution, Surface and Subsurface Results

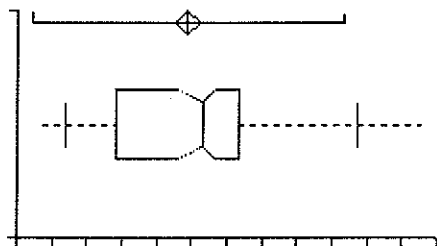
Continuous summary descriptives

analysed with: Analyse-It + General 1.62

Log Lead Avg Dup (mg/kg)

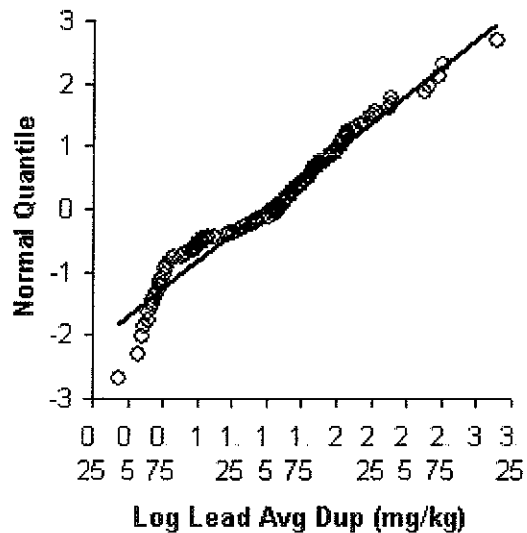


n	142
Mean	1.474
95% CI	1.381 to 1.568
Variance	0.3182
SD	0.5641
SE	0.0473
CV	38%



Median	1.588
96.4% CI	1.418 to 1.644

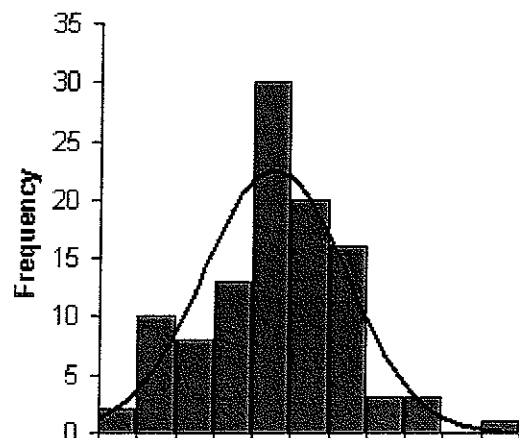
Range	2.702175144
IQR	0.871226951
Percentile	
2.5th	0.602
25th	0.970
50th	1.588
75th	1.841
97.5th	2.684



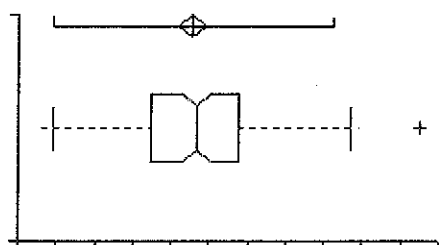
	Coefficient	p
Shapiro-Wilk	0.9610	0.0005
Skewness	0.1481	0.4575
Kurtosis	-0.5343	0.0954

Figure A2-4
Soil Lead Distribution – Log Transformed, Surface and Subsurface Results

Log Lead Avg Dup (mg/kg)

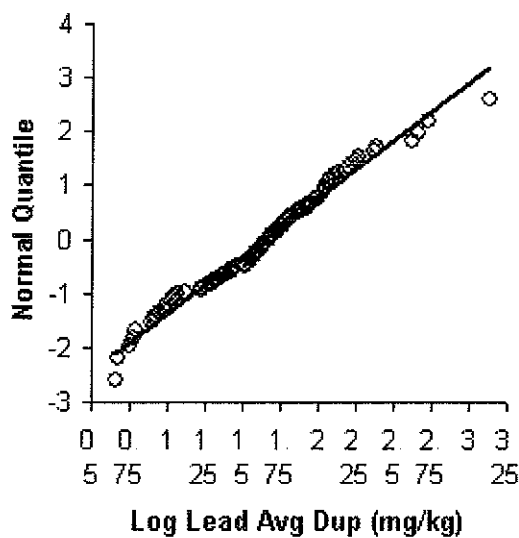


n	106
Mean	1.653
95% CI	1.565 to 1.742
Variance	0.2122
SD	0.4607
SE	0.0447
CV	28%



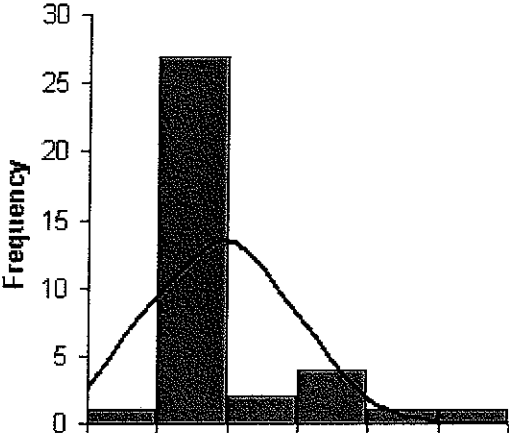
Median	1.668
95.9% CI	1.615 to 1.759
Range	2.480326395
IQR	0.558331413

Percentile	
2.5th	0.729
25th	1.390
50th	1.668
75th	1.948
97.5th	2.677

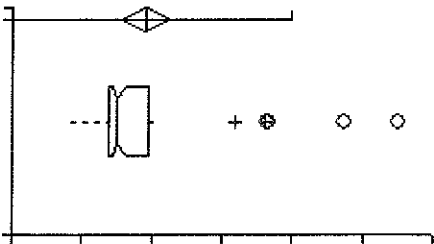


	Coefficient	p
Shapiro-Wilk	0.9819	0.1592
Skewness	0.1054	0.6438
Kurtosis	0.4674	0.2822

Figure A2-5
Soil Lead Distribution – Log Transformed, Surface Results

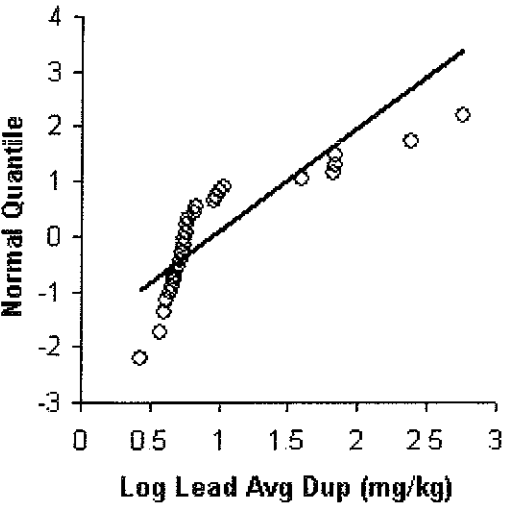


n	36
Mean	0.947
95% CI	0.774 to 1.120
Variance	0.2622
SD	0.5120
SE	0.0853
CV	54%



Median	0.744
97.1% CI	0.724 to 0.820
Range	2.326032265
IQR	0.284009258

Percentile	
2.5th	-
25th	0.688
50th	0.744
75th	0.972
97.5th	-



	Coefficient	p
Shapiro-Wilk	0.6850	<0.0001
Skewness	2.2189	<0.0001
Kurtosis	4.7519	0.0018

Figure A2-6
Soil Lead Distribution – Log Transformed, Subsurface Results

The EPC for the combined surface and subsurface soil lead data was represented by the CLT-based 95 UCL because n is large ($n = 142$) and the distribution is unknown. The EPC for the surface-only soil lead data was also represented by the CLT-based 95 UCL because n is large ($n = 106$). The surface-only soil lead data fit the lognormal distribution, but the H -statistic was not used because table values of the H -statistic are not available for n greater than 101 (Gilbert 1987). This site was evaluated using the EPC for the combined surface and subsurface soil data because the site conceptual model includes burrowing animals, such as the California ground squirrel.

A2.2 Exposure Scenario for Wildlife Receptors

Exposure parameters for wildlife receptors are listed in Table A2-3. Most exposure parameters were estimated with values presented in United States Environmental Protection Agency (U.S. EPA) *Wildlife Exposure Factors Handbook* (U.S. EPA 1993).

Exposure dose estimates were calculated using the following formula:

$$Exposure\ Dose = \sum_{i=1}^n \left(\frac{Concentration_{media} * Ingestion\ Rate * Fractional\ Intake * AE * SUF}{Body\ Weight} \right)$$

where

- $Exposure\ Dose$ = dose of chemical of potential concern (COPC) from ingestion (mg_{COPC}/kg_{Body Weight}-day)
- n = number of ingested media for a wildlife receptor (unitless)
- $Concentration_{media}$ = concentration of COPC in an ingested medium (soil or food item) (mg_{COPC}/kg_{food item} dry weight)
- $Ingestion\ Rate$ = ingestion rate of food for an ecological receptor (kg_{food}/day dry weight)
- $Fractional\ Intake$ = diet component of ingested medium (soil or food item) (percent of diet)
- AE = assimilation efficiency, bioavailability (unitless)
- SUF = site use factor (unitless)
- $Body\ Weight$ = body weight for wildlife receptor (kg_{Body Weight})

Lead concentration was estimated in food items based on a soil EPC of 89.5 mg/kg and an uptake factor of 0.0093 for plant, invertebrate, and small mammal food items (CH2M Hill 1999).

The site use factor (SUF) was determined as the ratio of the site area to the wildlife home range. The site area was estimated from site figures presented in the draft FSI Phase II Report (CH2M Hill 2000). Wildlife home range areas were estimated with average values listed in scientific literature.

Bioavailability of lead, which varies depending on numerous site-specific physical, chemical, and biological factors, was estimated from scientific literature as 25 percent. Some factors are site specific for soil and some are site specific for ecological receptors (e.g., the lead form occurring in the soil [primarily due to solubility]; soil particle size, pH, and total organic carbon; and receptor species, age, diet, and nutritional status).

Table A2-3
Wildlife Exposure Factors

Type of Exposure Parameter	California Ground Squirrel (mammal, herbivore)	Mourning Dove (bird, herbivore)	Raccoon (mammal, omnivore)	American Robin (bird, omnivore)	Red Fox (mammal, carnivore)	American Kestrel (bird, carnivore)
Body Weight, kg	0.5 ^a	0.13 ^b	5.12 ^c	0.081 ^c	4.535 ^c	0.11 ^d
Ingestion Rate, total, kg/day dw	0.020699 ^e	0.015421 ^f	0.26301 ^g	0.011333 ^f	0.238047 ^h	0.01056 ^{ch,i}
Home Range, ha	0.24 ^j	1,000 ^c	156 ^c	17.53 ^k	406 ^c	15 ^l
Fractional Intake Incidental Diet, soil % dw	5.0% ^c	5.0% ^c	9.4% ^c	10.0% ^c	2.8% ^c	0% ^m
Fractional Intake Diet, plant %	95% ^m	95% ^c	40% ^c	0% ^c	0% ^c	0% ^c
Fractional Intake Diet, invertebrate %	5% ^m	5% ^c	50% ^c	100% ^c	0% ^c	33% ^c
Fractional Intake Diet, mammal %	0% ^m	0% ^c	10% ^c	0% ^c	100% ^c	67% ^c
Site Area (assume 2.19 ha overall [CH2M Hill 2000 Figure 5-13b])	2.19 ^h	2.19 ^h	2.19 ^h	2.19 ^h	2.19 ^h	2.19 ^h
Site Use Factor (site area/home range)	1 ^h	0.00219 ^h	0.014038 ^h	0.1249287 ^h	0.005394 ^h	0.146 ^h

Notes:

^a Silva and Downing 1995

^b Dunning 1984

^c U.S. EPA 1993

^d Bloom 1973

^e Nagy 1987, rodents

^f Nagy 1987, birds

^g Nagy 1987, mammals

^h calculated

ⁱ for ingestion rate ww-dw conversion: 0.88 moisture of herbivore food, 0.78 moisture of omnivore food, and 0.68 moisture of carnivore food

(table continues)

Table A2-3 (continued)

- ^j Ziener et al. 1990
- ^k average from literature
- ^l Meyer and Balgooyen 1987
- ^m CH2M Hill 2000

Acronyms/Abbreviations:

- ha – hectare, 2.471 acres
- kg/day dw – kilograms per day, dry weight
- U.S. EPA – United States Environmental Protection Agency
- ww-dw – wet weight to dry weight

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A recent report (Maddaloni et al. 1998) reported that fasting adult humans absorbed 26 percent of ingested lead. However, this study is not similar to the site model of a typically nourished, normally feeding ecological receptor. The same study (Maddaloni et al. 1998) reported that the ingested lead absorption was only 2.5 percent for normally feeding adult humans.

A few studies have reported lead bioavailability for ecological receptors: 1 to 2 percent bioavailability for cattle and sheep (Blaxter 1950) and 6 percent for rabbits (Davis et al. 1992). Lead bioavailability estimates for normally fed adult humans range from 2.5 to 10 percent (Heard and Chamberlain 1982, James et al. 1985, Maddaloni et al. 1998, Rabinowitz et al. 1980, Watson et al. 1986).

A review of site-specific data developed by CH2M Hill (1999) indicates that the soil lead bioavailability may be less than 10 percent. Those investigators reported a soil-to-small mammal uptake factor of 0.0093. The estimate was based on colocated soil and rodent samples. The uptake factor accounts for all sources of lead to the rodent, which would represent an upper limit for soil lead accumulated through incidental ingestion. Site-specific information is not available for lead uptake or bioavailability for avian species, and it is uncertain whether the small mammals tested (mouse) provide an adequate estimate for avian species. However, based on the available data, the 25 percent estimate is likely sufficiently conservative for developing the PRGs. Analysis of site soil for lead speciation (i.e., the form of lead) could provide basis for selecting a site-specific lead bioavailability value.

The gastrointestinal bioavailability of lead from food items to wildlife receptors is assumed at 100 percent.

A2.3 Toxicity Reference Values

Toxicity reference values (TRVs) are selected from reviews of relevant measurements published in the scientific literature. The U.S. Navy has published TRVs selected from a literature review, in conjunction with the U.S. EPA Region 9 BTAG (Biological Technical Assistance Group) (EFA-West 1998). Department of Toxic Substances Control (DTSC) subsequently incorporated the Navy/BTAG TRVs into DTSC guidance (DTSC 2000).

Wildlife TRVs are presented as an upper and lower estimate of an effects threshold. The Low-TRV, based on no-observable-adverse-effect level (NOAEL) data, represents a threshold below which no adverse effects are expected. The High-TRV, based on an approximate midpoint of the range of effects levels, represents a threshold above which adverse effects are likely to occur. The range between the Low-TRV and the High-TRV represents the uncertainty. PRGs are derived based on the Low- and High-TRV. Eventually, a cleanup goal is selected from the range presented by the Low- and High-TRV-based PRGs.

The Navy/BTAG Low-TRV and High-TRV for mammal species are 0.0015 milligrams per kilogram per day (mg/kg-day) and 240.64 mg/kg-day, respectively. The Navy/BTAG Low-TRV and High-TRV for avian species are 0.014 mg/kg-day and 8.75 mg/kg-day,

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respectively. An additional TRV was selected to represent a potential basis for a site-specific cleanup goal. The additional TRVs are 8 mg/kg-day for mammals, and 0.19 mg/kg-day for birds. These TRVs are summarized below:

TRVs for Mammals (mg/kg-day)

0.0015	NOAEL based on hematological, hepatic, and reproductive effects for rats (0.208 kg _{BW}) exposed to lead acetate in drinking water (Krasovskii et al. 1979 as presented in ATSDR 1993). Navy/BTAG Low-TRV (EFA-West 1998).
8	NOAEL based on reproductive effects for rats (0.350 kg _{BW}) exposed to lead acetate in food (Azar et al. 1973). Additional TRV.
240.64	LOAEL based on body and organ weight effects for mice (0.0187 kg _{BW}) exposed to lead acetate in food (Wise 1981). Navy/BTAG High-TRV (EFA-West 1998).

TRVs for Birds (mg/kg-day)

0.014	NOAEL based on reproductive effects for Japanese quail exposed to lead acetate in food (Edens et al. 1976). Navy/BTAG Low-TRV (EFA-West 1998).
0.19	NOAEL based on reproductive effects for Japanese quail exposed to lead acetate in food (Edens and Garlich 1983). Additional TRV.
8.75	LOAEL based on reproductive effects for chickens exposed to lead acetate in food (Edens and Garlich 1983). Navy/BTAG High-TRV (EFA-West 1998).

TRVs were adjusted from the species used in the scientific literature to the specific species selected as an ecological receptor at the site. Within any group of animal species, the major source of variation in sensitivity to toxic effects of contaminants is varying body size (Sample et al. 1996). In general, smaller organisms are more tolerant of chemical exposures as a result of the higher rate of metabolism and greater detoxification capabilities. To account for this source of variation in sensitivity, the toxicity benchmarks obtained from the studies were adjusted to estimate receptor species (wildlife) toxicity values using the following equation (Sample et al. 1996):

$$\text{NOAEL}_{\text{wildlife}} = \text{NOAEL}_{\text{test}} * (\text{BW}_{\text{test}}/\text{BW}_{\text{wildlife}})^{1/4}$$

where

NOAEL _{wildlife}	= no-observable-adverse-effect level for wildlife species
NOAEL _{test}	= no-observable-adverse-effect level for test species
BW _{test}	= body weight for test species
BW _{wildlife}	= body weight for wildlife species

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Research by Mineau et al. (1996) suggests that physiological scaling factors developed for mammals may not be appropriate for interspecies extrapolations among avian receptors. According to their research, scaling factors for the majority of chemicals evaluated (29 of 37 pesticides) were not significantly different from 1. Based on this information, the above equation becomes:

$$\text{NOAEL}_{\text{wildlife}} = \text{NOAEL}_{\text{test}} * (\text{BW}_{\text{test}}/\text{BW}_{\text{wildlife}})^0$$

which is reduced to:

$$\text{NOAEL}_{\text{wildlife}} = \text{NOAEL}_{\text{test}}$$

Therefore, an avian wildlife species NOAEL is equivalent to an avian test species NOAEL without any adjustment factor for body weight.

The receptor-specific adjusted TRVs are:

	California Ground Squirrel	Mourning Dove	Raccoon	American Robin	Red Fox	American Kestrel
<u>Low-TRV (mg/kg-day)</u>						
Lead	0.0012	0.014	0.00067	0.014	0.00069	0.014
<u>High-TRV (mg/kg-day)</u>						
Lead	106	8.75	59.2	8.75	61	8.75
<u>Additional-TRV (mg/kg-day)</u>						
Lead	7.32	0.19	4.09	0.19	4.22	0.19

A2.4 Development of Refined PRGs

The largest wildlife exposure to soil lead was by incidental soil ingestion (Table A2-4). Incidental soil ingestion is often found as a significant exposure pathway, especially for ground-foraging species and species that consume roots along with stem and leaf plant material. The California ground squirrel showed the greatest risk potential compared to the other wildlife receptors, based on the Low-TRV (Table A2-4). However, based on the Additional-TRV and the High-TRV, the American robin showed the greatest amount of potential risk when compared to the other wildlife receptors.

PRGs for plants, soil invertebrates, soil microbes, and wildlife are presented in Table A2-5. The PRGs for plants, soil invertebrates, and soil microbes are 10th percentile values of LOAEL data presented by Efroymson et al. (1997a), Efroymson et al. (1997b), and Efroymson et al. (1997b), respectively. The PRGs for wildlife were calculated as follows:

Table A2-4
Summary of Dose Exposure and Hazard Quotients for Wildlife Exposure to Lead^a

Wildlife Receptor	Dose from Soil Ingestion ^b (mg/kg-day)	Dose from Plant Ingestion ^b (mg/kg-day)	Dose from Invertebrate Ingestion ^b (mg/kg-day)	Dose from Mammal Ingestion ^b (mg/kg-day)	Total Dose ^c (mg/kg-day)	HQ ^d _{Low}	HQ ^d _{Additional}	HQ ^d _{High}
California ground squirrel	4.63E-02	3.27E-02	1.72E-03	0	8.08E-02	6.70E+01	1.10E-02	7.63E-04
Mourning dove	1.33E-01	9.38E-02	4.94E-03	0	5.07E-04	3.62E-02	2.67E-03	5.79E-05
Raccoon	1.08E-01	1.71E-02	2.14E-02	4.28E-03	2.12E-03	3.14E+00	5.18E-04	3.58E-05
American robin	3.13E-01	0	1.16E-01	0	5.37E-02	3.83E+00	2.82E-01	6.13E-03
Red fox	3.29E-02	0	0	4.37E-02	4.13E-04	5.95E-01	9.80E-05	6.77E-06
American kestrel	0	0	2.60E-02	5.39E-02	1.17E-02	8.33E-01	6.14E-02	1.33E-03

Notes:

^a General:

AE_{soil} as 0.25 for lead

AE_{plant}, AE_{invertebrate}, AE_{mammal} as 1.0

CM_{soil} as 89.5 mg/kg for lead

FI_i as shown in Table A2-3

UF_{soil} as 1.0

UF_{plant}, UF_{invertebrate}, UF_{mammal} as 0.0093

^b Dose_i as $CM_{soil} * UF_i * IR * FI_i * AE_i * BW^{-1}$

^c Total Dose as $\sum (Dose_i) * SUF$

^d HQ_{Low} as Total Dose * (TRV_{Low})⁻¹, HQ_{Additional} as Total Dose * (TRV_{Additional})⁻¹, HQ_{High} as Total Dose * (TRV_{High})⁻¹

Acronyms/Abbreviations:

AE_i – gastrointestinal adsorption efficiency, medium specific

BW – body weight of ecological receptor

CM – concentration in media

FI_i – fractional intake, medium specific diet component

HQ – hazard quotient

IR – ingestion rate

mg/kg – milligrams per kilogram

mg/kg-day – milligrams per kilogram per day

SUF – site use factor

TRV – toxicity reference value

UF_i – uptake factor, soil to food item, medium specific

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Table A2-5
Summary of Potential Ecological Soil Lead PRGs

Lead Preliminary Remediation Goal (PRG) (mg/kg)	Ecological Receptor Species	Toxicity Reference Value (TRV)	Source
23.4	American robin	Avian low-TRV = 0.014 mg/kg-day SUF = 12.5%; AE = 25%	Navy/BTAG from Edens et al. 1976 (EFA-West 1998)
50	Plants	Benchmark (10th percentile of LOAEL)	Efroymson et al. 1997a
317	American robin	Avian additional-TRV = 0.19 mg/kg-day SUF = 12.5%; AE = 25%	Additional TRV from Edens and Garlich 1983
500	Invertebrates (earthworms)	Benchmark (10th percentile of LOAEL)	Efroymson et al. 1997b
900	Soil microbes	Benchmark (10th percentile of LOAEL)	Efroymson et al. 1997b
14,600	American robin	Avian high-TRV = 8.75 mg/kg-day SUF = 12.5%; AE = 25%	Navy/BTAG from Edens and Garlich 1983 (EFA-West 1998)

Acronyms/Abbreviations:

AE – assimilation efficiency ([bioavailability] for soil bound lead)
BTAG – Biological Technical Assistance Group
EFA – Engineering Field Activity
LOAEL – lowest-observable-adverse-effect level
mg/kg – milligrams per kilogram
mg/kg-day – milligrams per kilogram per day
SUF – site use factor (for wildlife receptor)

$$PRG = \frac{TRV * BW}{\sum_{i=1}^k [UF_i * IR * FI_i * AE_i * SUF]}$$

where

PRG = concentration of chemical in soil. Value is expressed as mg/kg_{dw}.
TRV = toxicity reference value. A dose expressed as quantity of chemical per body weight per day, mg_{chemical}/kg_{BW}-day.
BW = body weight of the animal, expressed as kg_{BW}.
UF_i = ingested-medium-specific uptake factor (soil or food item). Value is expressed as kg_{soil}/kg_{tissue}. UF for soil is 1.
IR = receptor-specific ingestion rate, expressed as quantity of food (weight) per day, kg_{food dw}/day.
FI_i = receptor-specific fractional intake rate for each medium (including plant and animal food items). Dietary composition. Value has no units.
AE_i = chemical-specific gastrointestinal absorption efficiency (bioavailability) for each ingested medium (including soil and food items) for each representative species. Value has no units.

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SUF = site use factor, receptor specific. Value has no units.

k = number of ingested media types (i.e., soil, plant, invertebrate, mammal).

The American robin is listed as the representative species for wildlife because it was the most sensitive of the wildlife species when the additional-TRV and high-TRV were used (i.e., hazard quotients [HQs] for the robin were higher than HQs for the other wildlife species). The background value for soil lead at NAVWPNSTA Seal Beach is listed for comparison.

The 23.4-mg/kg PRG is based on the Navy/BTAG Low-TRV, but the ecological significance of the Edens et al. (1976) laboratory results are unclear. The study by Edens et al. (1976) showed a statistically significant reduction of egg production at 0.14 mg/kg. However, the reduction was less than 20 percent, which is often used as a threshold of biological (ecological) significance (Suter et al. 1995, U.S. EPA 1997b). In addition, Edens and Garlich (1983) conducted similar experiments and found no effects at a similar level. In order to develop effective PRGs, the laboratory results upon which they are based must be associated with measured effects that will manifest an adverse condition in a natural population.

The 50-mg/kg PRG is based on a screening benchmark value for plants. However, plants are not a critical part of the ecosystem at this site. The site is a ruderal habitat with a regularly maintained grass lawn. The 50 mg/kg benchmark value is based on results for a range of plant species. Based on the site conditions and site use, the site will only need to support landscaped grass.

The 317-mg/kg PRG is based on the Additional-TRV. No effects are expected at this level based on an evaluation of reproduction effects for Japanese quail exposed to lead in their diet (Edens and Garlich 1983).

The 500-mg/kg PRG is based on a screening benchmark value for soil invertebrates. This PRG is applicable to the site because of the value of earthworms and other soil invertebrates as food items for other wildlife receptors.

The 900-mg/kg PRG is based on a screening benchmark value for soil microbes. This PRG is applicable to the site because of the value of the microbes as food items for other wildlife receptors and in nutrient recycling.

The 14,600-mg/kg PRG is based on the Navy/BTAG High-TRV. This is an upper-bound PRG because effects are expected at this level.

A3 RECOMMENDATION FOR CLEANUP GOAL

Selection of the cleanup goal should consider the PRGs developed for the ecological receptors applicable to the site. In addition, selection of the cleanup goal should consider the ecological and other effects to the site from implementing the selected removal action.

Because the site consists primarily of a regularly maintained grass lawn, any ecological effects to plants, soil invertebrates, and soil microbes following a selected removal action would be managed through the process of routine lawn maintenance. Ecological effects

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to wildlife following a selected removal action would likely be minimal due to the great mobility of the local wildlife.

IR Site 73 has been identified as a known archaeological site with significant cultural resources (Ogden 1997). Effects to these resources should be considered when evaluating potential removal actions.

The lead PRG of 23.4 mg/kg for wildlife, as represented by the American robin, is based on an exceedingly conservative literature value, as discussed earlier. This value is not considered further as a potential cleanup goal. The lead PRG of 50 mg/kg for plants is not a suitable cleanup goal for the site because plant life is limited by regular maintenance of the grass lawn. The lead PRG of 317 mg/kg for wildlife, as represented by the American robin, is a suitable cleanup goal and is protective of wildlife at the site. The value of 317 mg/kg is considered a minimum value that is protective of wildlife. Uncertainties of the biological effects estimate indicate that a cleanup goal protective of wildlife may range as high as the PRG of 14,600 mg/kg. The lead PRG values of 500 mg/kg and 900 mg/kg for soil invertebrates and soil microbes, respectively, are suitable for consideration as cleanup goals at the site due to the value of these organisms at the site.

Based on this review of PRGs as potential lead cleanup goals and the site ecological receptors, the recommended lead cleanup goal should be 317 mg/kg or greater, which is protective of wildlife receptors. The recommended lead cleanup goal should not exceed 14,600 mg/kg, which is the upper estimate of protection of wildlife receptors. Also, the recommended lead cleanup goal should not exceed 500 mg/kg, which is protective of soil invertebrates and microbes. Therefore, the recommended lead cleanup goal is 317 mg/kg.

A4 REFERENCES

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APPENDIX B

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

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ACRONYMS/ABBREVIATIONS

A	applicable
ACL	alternative concentration limit
AM	action memorandum
app.	appendix
ARAR	applicable or relevant and appropriate requirement
BAT	best available technology
BCPCT	best conventional pollution control technology
BDAI	best demonstrated available technology
CAI	closed, abandoned, or inactive
Cal. Code Regs.	<i>California Code of Regulations</i>
Cal-EPA	California Environmental Protection Agency
Cal. Fish & Game Code	<i>California Fish and Game Code</i>
Cal. Pub. Res. Code	<i>California Public Resources Code</i>
Cal. Water Code	<i>California Water Code</i>
CAMU	corrective action management unit
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	<i>Code of Federal Regulations</i>
ch.	chapter
COPC	chemical of potential concern
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
div.	division
DOI	Department of the Interior
DON	Department of the Navy
DTSC	(Cal-EPA) Department of Toxic Substances Control
EE/CA	engineering evaluation/cost analysis
ESA	Endangered Species Act
Exec. Order No.	executive order number
Fed. Reg.	<i>Federal Register</i>
gpd	gallons per day
IR	Installation Restoration (Program)
LDR	land disposal restriction

Acronyms/Abbreviations

MCL	maximum contaminant level
MCLG	maximum contaminant level goal
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NAAQS	National Ambient Air Quality Standards (primary and secondary)
NAVWPNSTA	Naval Weapons Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
PM ₁₀	particulate matter, less than 10 micrometers in diameter
POC	point of compliance
ppm	parts per million
Prop.	proposition
pt.	part
Pub. L. No.	public law number
RA	relevant and appropriate
RCRA	Resource Conservation and Recovery Act
Res.	resolution
RWQCB	(California) Regional Water Quality Control Board (Santa Ana Region)
§	section
SCAQMD	South Coast Air Quality Management District
SMCL	secondary maximum contaminant level
STLC	soluble threshold limit concentration
SVOC	semivolatile organic compound
SWRCB	(California) State Water Resources Control Board
TBC	to be considered
TCLP	toxicity characteristic leaching procedure
tit.	title
TTLC	total threshold limit concentration
U.S.C.	<i>United States Code</i>
U.S. EPA	United States Environmental Protection Agency
WET	(Cal-EPA) Waste Extraction Test
WQO	water quality objective

Section B1 INTRODUCTION

This appendix identifies and evaluates potential federal and state of California applicable or relevant and appropriate requirements (ARARs) from the universe of regulations, requirements, and guidance and sets forth the Department of the Navy (DON) determinations regarding those potential ARARs for each response action alternative retained for detailed analysis in this engineering evaluation/cost analysis (EE/CA).

This evaluation includes an initial determination of whether the potential ARARs actually qualify as ARARs, and a comparison for stringency between the federal and state regulations to identify the controlling ARARs. The identification of ARARs is an iterative process. The final determination of ARARs will be made by the DON in the action memorandum (AM), after public review, as part of the response action selection process.

B1.1 SUMMARY OF CERCLA AND NCP REQUIREMENTS

Section 121(d) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, 42 *United States Code* [U.S.C.] Section [§] 9621[d]), as amended, states that remedial (or removal) actions at CERCLA sites must attain (or the decision document must justify the waiver of) any federal or more stringent state environmental standards, requirements, criteria, or limitations determined to be legally applicable or relevant and appropriate. Although Section 121 of CERCLA does not itself expressly require that CERCLA removal actions comply with ARARs, the United States Environmental Protection Agency (U.S. EPA) has promulgated a requirement in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) mandating that CERCLA removal actions “... shall, to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements under federal environmental or state environmental or facility siting laws” (Title 40 *Code of Federal Regulations* [C.F.R.] § 300.415[j]) (40 C.F.R. § 300.415[j]). It is DON policy to follow this requirement. Certain specified waivers may be used for removal actions, as is the case with remedial actions.

Applicable requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that specifically address the situation at a CERCLA site. The requirement is applicable if the jurisdictional prerequisites of the standard show a direct correspondence when objectively compared to the conditions at the site. An applicable federal requirement is an ARAR. An applicable state requirement is an ARAR only if it is more stringent than federal ARARs.

If the requirement is not legally applicable, then the requirement is evaluated to determine whether it is relevant and appropriate. Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal or state law that, while not applicable, address problems or situations similar to the circumstances of the proposed response action and are well suited to the conditions of the site.

(U.S. EPA 1988a). A requirement must be determined to be both relevant and appropriate in order to be considered an ARAR.

The criteria for determining relevance and appropriateness are listed in 40 C.F.R. § 300.400(g)(2) and include the following:

- the purpose of the requirement and the purpose of the CERCLA action
- the medium regulated or affected by the requirement and the medium contaminated or affected at the CERCLA site
- the substances regulated by the requirement and the substances found at the CERCLA site
- any variances, waivers, or exemptions of the requirement and their availability for the circumstances at the CERCLA site
- the type of place regulated and the type of place affected by the release or CERCLA action
- the type and size of structure or facility regulated and the type and size of structure or facility affected by the release or contemplated by the CERCLA action
- any consideration of use or potential use of affected resources in the requirement and the use or potential use of the affected resources at the CERCLA site

According to CERCLA ARARs guidance (U.S. EPA 1988a), a requirement may be “applicable” or “relevant and appropriate,” but not both. Identification of ARARs must be done on a site-specific basis and involve a two-part analysis: first, a determination whether a given requirement is applicable; then, if it is not applicable, a determination whether it is nevertheless both relevant and appropriate. It is important to explain that some regulations may be applicable or, if not applicable, may still be relevant and appropriate. When the analysis determines that a requirement is both relevant and appropriate, such a requirement must be complied with to the same degree as if it were applicable (U.S. EPA 1988a).

Tables included in this appendix present each potential ARAR with a determination of ARAR status (i.e., applicable, relevant and appropriate, or not an ARAR). For the determination of relevance and appropriateness, the pertinent criteria were examined to determine whether the requirements addressed problems or situations sufficiently similar to the circumstances of the release or response action contemplated, and whether the requirement was well suited to the site. A negative determination of relevance and appropriateness indicates that the requirement did not meet the pertinent criteria. Negative determinations are documented in the tables of this appendix and are discussed in the text only for specific cases.

To qualify as a state ARAR under CERCLA and the NCP, a state requirement must be:

- a state law,
- an environmental or facility siting law,

Section B1 Introduction

- promulgated (of general applicability and legally enforceable),
- substantive (not procedural or administrative),
- more stringent than the federal requirement,
- identified in a timely manner, and
- consistently applied

To constitute an ARAR, a requirement must be substantive. Therefore, only the substantive provisions of requirements identified as ARARs in this analysis are considered to be ARARs. Permits are considered to be procedural or administrative requirements. Provisions of generally relevant federal and state statutes and regulations that were determined to be procedural or nonenvironmental, including permit requirements, are not considered to be ARARs. CERCLA 121(e)(1), 42 U.S.C. § 9621(e)(1), states that “No Federal, State, or local permit shall be required for the portion of any removal or remedial action conducted entirely on-site, where such remedial action is selected and carried out in compliance with this section.” The term *on-site* is defined for purposes of this ARARs discussion as “the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action” (40 C.F.R. § 300.5).

Nonpromulgated advisories or guidance issued by federal or state governments are not legally binding and do not have the status of ARARs. Such requirements may, however, be useful, and are “to be considered” (TBC). TBC (40 C.F.R. § 300.400[g][3]) requirements complement ARARs but do not override them. They are useful for guiding decisions regarding cleanup levels or methodologies when regulatory standards are not available.

Pursuant to U.S. EPA guidance (U.S. EPA 1988a), ARARs are generally divided into three categories: chemical-specific, location-specific, and action-specific requirements. This classification was developed to aid in the identification of ARARs; some ARARs do not fall precisely into one group or another. ARARs are identified on a site basis for remedial (or removal) actions where CERCLA authority is the basis for cleanup.

As the lead federal agency, the DON has primary responsibility for identifying federal ARARs at Installation Restoration (IR) Site 73, Naval Weapons Station (NAVWPNSTA) Seal Beach. Potential federal ARARs that have been identified for the IR Site 73 EE/CA are discussed in Section B1.2.2. Pursuant to the definition of the term *on-site* in 40 C.F.R. § 300.5, the on-station areas that are part of this action are considered to be on-site. IR Site 73 is the area under and surrounding the station water tower. Since its construction around 1944, the water tower has been periodically painted and sandblasted an unknown number of times. The most recent painting took place around 1994. Previous painting activities resulted in a release of sandblast paint chips to the area surrounding the water tower. The chemicals of potential concern (COPCs) at IR Site 73 were metals and semivolatile organic compounds (SVOCs). Based on the ecological risk screening performed as part of the focused site inspection Phase II (CH2M Hill 2000), ecologically significant risks to terrestrial receptors exist from metals in soil. Lead is the

primary contributor to ecological risks at the site. The removal alternatives being considered for evaluation in the IR Site 73 EE/CA are no action and excavation with off-site disposal. Since IR Site 73 is known to contain cultural resources, the volume of soil subject to removal action and/or disturbance will be minimized.

Identification of potential state ARARs was initiated through DON requests that the California Environmental Protection Agency (Cal-EPA) Department of Toxic Substances Control (DTSC) identify potential state ARARs, an action described in more detail in Section B1.2.3. Potential state ARARs that have been identified for IR Site 73 are discussed below.

B1.2 METHODOLOGY DESCRIPTION

The process of identifying and evaluating potential federal and state ARARs is described in this subsection.

B1.2.1 General

As the lead federal agency, the DON has primary responsibility for identification of potential ARARs for IR Site 73. In preparing this ARARs analysis, the DON undertook the following measures, consistent with CERCLA and the NCP:

- identified federal ARARs for each response action alternative addressed in the EE/CA, taking into account site-specific information for IR Site 73
- reviewed potential state ARARs identified by the state to determine whether they satisfy CERCLA and NCP criteria that must be met in order to constitute state ARARs
- included only the submitted state requirements that were pertinent to the proposed removal action in the ARARs analysis
- evaluated and compared federal ARARs and their state counterparts to determine whether state ARARs are more stringent than the federal ARARs or are in addition to the federally required actions
- reached a conclusion as to which federal and state ARARs are the most stringent and/or "controlling" ARARs for each alternative

Removal action alternatives being considered for evaluation in the IR Site 73 EE/CA are no action and excavation with off-site disposal. Based on the proposed cleanup goal developed during the EE/CA, the area of impacted soil subject to removal action is approximately 700 square yards. The average depth of the removal area is approximately 1.7 feet below ground surface. Therefore, the volume of impacted soil subject to a removal action is approximately 400 bank cubic yards (500 loose cubic yards). Since IR Site 73 is known to contain cultural resources, the volume of soil subject to removal action and/or disturbance will be minimized.

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B1.2.2 Identifying and Evaluating Federal ARARs

The DON is responsible for identifying federal ARARs as the lead federal agency under CERCLA and the NCP. The final determination of federal ARARs will be made when the DON issues the AM. The federal government implements a number of federal environmental statutes that are the source of potential federal ARARs, either in the form of the statutes or regulations promulgated thereunder. Examples include the Resource Conservation and Recovery Act (RCRA), the Clean Water Act, the Safe Drinking Water Act, the Toxic Substances Control Act, and their implementing regulations, to name a few. See NCP preamble at 55 *Federal Register* (Fed. Reg.) 8764–8765 (1990) for a more complete listing.

The proposed response action and alternatives were reviewed against all potential federal ARARs, including but not limited to those set forth at 55 Fed. Reg. 8764–8765 (1990), in order to determine if they were applicable or relevant and appropriate utilizing the CERCLA and NCP criteria and procedures for ARARs identification by lead federal agencies.

B1.2.3 Identifying and Evaluating State ARARs

The process of identifying and evaluating potential state ARARs by the state and the DON is described in this subsection.

B1.2.3.1 SOLICITATION OF STATE ARARs UNDER NCP

U.S. EPA guidance (U.S. EPA 1988b) recommends that the lead federal agency consult with the state when identifying state ARARs for remedial (or removal) actions. In essence, the CERCLA/NCP requirements at 40 C.F.R. § 300.515 for remedial (or removal) actions provide that the lead federal agency request that the state identify chemical- and location-specific state ARARs upon completion of site characterization. The requirements also provide that the lead federal agency request identification of all categories of state ARARs (chemical-, location-, and action-specific) upon completion of identification of removal alternatives for detailed analysis. The state must respond within 30 days of receipt of the lead federal agency requests. The remainder of this subsection documents the DON's efforts to date to identify and evaluate state ARARs.

The DON followed the procedures of the process set forth in 40 C.F.R. § 300.515 and Section 7.6 of the Federal Facilities Agreement for remedial (or removal) actions in seeking state assistance in identifying state ARARs.

B1.2.3.2 CHRONOLOGY OF EFFORTS TO IDENTIFY STATE ARARs

The following chronology summarizes the DON efforts to obtain state assistance in identifying state ARARs for the response action at IR Site 73. Key correspondence between the DON and the state agencies relating to this effort is attached as Attachment A to this appendix and has been included in the Administrative Record for this EE/CA.

The DON formally requested state chemical-, location-, and action-specific ARARs for IR Site 73. A letter was sent 20 June 2001 to the DTSC. Following the DON

solicitation for ARARs from DTSC, DTSC requested ARARs from other state and local agencies. DTSC issued a letter to the DON on 08 August 2001 with correspondence regarding the ARARs solicitation from the following agencies:

- Department of Transportation (correspondence dated 31 July 2001)
- California Integrated Waste Management Board (correspondence dated 26 July 2001)
- California Air Resources Board (correspondence dated 23 July 2001)
- county of Orange, Public Facilities and Resources Department (correspondence dated 19 July 2001)
- city of Seal Beach (correspondence dated 25 July 2001)
- Department of Fish and Game (correspondence dated 03 August 2001)
- South Coast Air Quality Management District (SCAQMD) (correspondence dated 26 July 2001)

In addition, the California Regional Water Quality Control Board, Santa Ana Region issued a letter to the DON on 17 August 2001 in response to the ARARs request.

Some of the agencies requested by DTSC to provide ARARs input did not respond. On 15 October 2001, the DON issued a letter to these agencies and requested that they respond to ensure timely implementation of the removal action. This follow-up request was sent to the following agencies:

- California Coastal Commission
- Department of Health Services
- Orange County Health Care Agency
- Orange County Sanitation District
- Orange County Water District
- city of Seal Beach Planning Department
- South Coast Air Quality Management District

Subsequently, responses were received from the following agencies:

- Orange County Sanitation District (correspondence dated 31 October 2001)
- California Coastal Commission (correspondence dated 22 October 2001)

B1.3 OTHER GENERAL ISSUES

General issues identified during the evaluation of ARARs for IR Site 73 are discussed in the following subsections.

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B1.3.1 General Approach to Requirements of the Federal Resource Conservation and Recovery Act

The RCRA is a federal statute passed in 1976 to meet four goals: the protection of human health and the environment, the reduction of waste, the conservation of energy and natural resources, and the elimination of the generation of hazardous waste as expeditiously as possible. The Hazardous and Solid Waste Amendments of 1984 significantly expanded the scope of RCRA by adding new corrective action requirements, land disposal restrictions, and technical requirements. RCRA, as amended, contains several provisions that are potential ARARs for CERCLA sites.

Substantive RCRA requirements are applicable to response actions on CERCLA sites if the waste is a RCRA hazardous waste, and either:

- the waste was initially treated, stored, or disposed after the effective date of the particular RCRA requirement; or
- the activity at the CERCLA site constitutes treatment, storage, or disposal, as defined by RCRA (U.S. EPA 1988a).

The preamble to the NCP indicates that state regulations that are components of a federally authorized or delegated state program are generally considered federal requirements and potential federal ARARs for the purposes of ARARs analysis (55 Fed. Reg. 8666, 8742 [1990]). The state of California received approval for its base RCRA hazardous waste management program on 23 July 1992 (57 Fed. Reg. 32726 [1992]). The state of California "Environmental Health Standards for the Management of Hazardous Waste," set forth in Title 22 *California Code of Regulations*, Division 4.5 (Cal. Code Regs. tit. 22, div. 4.5), were approved by U.S. EPA as a component of the federally authorized state of California RCRA program.

The regulations of Cal. Code Regs. tit. 22, div. 4.5 are, therefore, a source of potential federal ARARs for CERCLA response actions. The exception is when a state regulation is "either broader in scope or more stringent" than the corresponding federal RCRA regulations. In that case, such regulations are not considered part of the federally authorized program or potential federal ARARs. Instead, they are purely state law requirements and potential state ARARs.

The U.S. EPA 23 July 1992 notice approving the state of California RCRA program (57 Fed. Reg. 32726 [1992]) specifically indicated that the state regulations addressed certain non-RCRA, state-regulated hazardous wastes that fell outside the scope of federal RCRA requirements. Cal. Code Regs. tit. 22, div. 4.5 requirements would be potential state ARARs for such non-RCRA, state-regulated wastes.

A key threshold question for the ARARs analysis is whether or not the contaminants at IR Site 73 constitute federal hazardous waste as defined under RCRA and the state's authorized program or qualify as non-RCRA, state-regulated hazardous waste. A discussion of waste characterization is included in Section B1.4.

B1.3.2 California Environmental Quality Act

The California Environmental Quality Act (CEQA) is applicable to state actions but not to actions of the federal government. Furthermore, U.S. EPA and the DON have determined that the requirements of the National Environmental Policy Act (NEPA) and CEQA are no more stringent than the requirements for environmental review under CERCLA, as amended by the Superfund Amendments and Reauthorization Act. Pursuant to the provisions of CERCLA, the NCP, and other federal environmental impact evaluation requirements, selecting a remedial (or removal) action with feasible mitigation measures and provision for public review is designed to assure that the proposed action provides for short- and long-term protection of the environment and public health. Hence, CERCLA performs the same function as, and is substantially parallel to, the state's requirements under CEQA.

For the reasons set forth above, NEPA and CEQA are not ARARs for CERCLA actions.

B1.4 WASTE CHARACTERIZATION

Selection of ARARs involves the characterization of wastes as described below.

B1.4.1 RCRA Hazardous Waste Determination

Federal RCRA hazardous waste determination is necessary to determine whether a waste is subject to RCRA requirements at Cal. Code Regs. tit. 22, div. 4.5 and other state requirements at Cal. Code Regs. tit. 23, div. 3, Chapter (ch.) 15. The first step in the RCRA hazardous waste characterization process is to evaluate contaminated media at the site(s) and determine whether it constitutes a "listed" RCRA waste. The preamble to the NCP states that "... it is often necessary to know the origin of the waste to determine whether it is a listed waste and that, if such documentation is lacking, the lead agency may assume it is not a listed waste" (55 Fed. Reg. 8666, 8758 [1990]).

This approach is confirmed in U.S. EPA guidance for CERCLA compliance with other laws (U.S. EPA 1988a), as follows:

"To determine whether a waste is a listed waste under RCRA, it is often necessary to know the source. However, at many Superfund sites, no information exists on the source of wastes. The lead agency should use available site information, manifests, storage records, and vouchers in an effort to ascertain the nature of these contaminants. When this documentation is not available, the lead agency may assume that the wastes are not listed RCRA hazardous wastes, unless further analysis or information becomes available that allows the lead agency to determine that the wastes are listed RCRA hazardous wastes."

RCRA hazardous wastes that have been assigned U.S. EPA hazardous waste numbers (or codes) are listed in Cal. Code Regs. tit. 22, §§ 66261.30–66261.33. The lists include hazardous waste codes beginning with the letters "F," "K," "P," and "U."

Knowledge of the exact source of a waste is required for source-specific listed wastes ("K" waste codes). Some knowledge of the nature or source of the waste is required even

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for listed wastes from nonspecific sources, such as spent solvents ("F" waste codes) or commercial chemical products ("P" and "U" waste codes). These listed RCRA hazardous wastes are restricted to commercially pure chemicals used in particular processes such as degreasing.

P and U wastes cover only unused and unmixed commercial chemical products, particularly spilled or off-spec products (U.S. EPA 1991a). Not every waste containing a P or U chemical is a hazardous waste. To determine whether a CERCLA investigation-derived waste contains a P or U waste, there must be direct evidence of product use. In particular, all the following criteria must be met. The chemicals must be:

- discarded (as described in 40 C.F.R. § 261.2[a][2]),
- either off-spec commercial products or a commercially sold grade,
- not used (soil contaminated with spilled unused wastes is a P or U waste), and
- the sole active ingredient in a formulation.

Hazardous waste characteristics, as defined in 40 C.F.R. §§ 261.21–261.24, are commonly referred to as ignitability, corrosivity, reactivity, and toxicity. California environmental health standards for the management of hazardous waste set forth in Cal. Code Regs. tit. 22, div. 4.5 were approved by U.S. EPA as a component of the federally authorized California RCRA program. Therefore, the characterization of RCRA waste is based on the state requirements.

The characteristics of ignitability, corrosivity, reactivity, and toxicity are defined in Cal. Code Regs. tit. 22, §§ 66261.21–66261.24. According to Cal. Code Regs. tit. 22, § 66261.24(a)(1)(A), "A waste that exhibits the characteristic of toxicity pursuant to subsection (a)(1) of this section has the EPA Hazardous Waste Number specified in Table I of this section which corresponds to the toxic contaminant causing it to be hazardous." Table I assigns hazardous waste codes beginning with the letter "D" to wastes that exhibit the characteristic of toxicity; D waste codes are limited to "characteristic" hazardous wastes.

According to Cal. Code Regs. tit. 22, § 66261.10, waste characteristics can be measured by an available standardized test method or be reasonably classified by generators of waste based on their knowledge of the waste provided that the waste has already been reliably tested or if there is documentation of chemicals used. Based on knowledge of the lead contamination in the soil, there is the potential that once excavated it could be classified as a hazardous waste.

The requirements at Cal. Code Regs. tit. 22, § 66261.24 list the toxic contaminant concentrations that determine the characteristic of toxicity. The concentration limits are in milligrams per liter (mg/L). These units are directly comparable to total concentrations in waste groundwater and surface water. For waste soils, these concentrations apply to the extract or leachate produced by the toxicity characteristic leaching procedure (TCLP).

A waste is considered hazardous if the contaminants in the wastewater or in the soil TCLP extract equal or exceed the TCLP limits. TCLP testing is required only if total

contaminant concentrations in soil equal or exceed 20 times the TCLP limits because TCLP uses a 20-to-1 dilution for the extract (U.S. EPA 1988a). Because the cleanup goal for lead of 317 milligrams per kilogram (mg/kg) is greater than 20 times the TCLP limit for lead of 5 mg/L, all of the soil subject to removal is considered to be a potential RCRA hazardous waste and would require TCLP testing to make the final classification for off-site disposal. TCLP testing would be performed for metals and possibly SVOCs. During on-site activities, the soil will be treated as RCRA hazardous.

B1.4.2 California-Regulated, Non-RCRA Hazardous Waste

A waste determined not to be a RCRA hazardous waste may still be considered a state-regulated non-RCRA hazardous waste. The state is broader in scope in its RCRA program in determining hazardous waste. Cal. Code Regs. tit. 22, § 66261.24(a)(2) lists the total threshold limit concentrations (TTLCs) and the soluble threshold limit concentrations (STLCs) for non-RCRA hazardous waste. The state applies its own leaching procedure, waste extraction test (WET), which uses a different acid reagent and has a different dilution factor (tenfold). There are other state requirements that may be broader in scope than federal ARARs for identifying non-RCRA wastes regulated by the state. These may be potential ARARs for wastes not covered under federal ARARs. See additional subsections of Cal. Code Regs. tit. 22, § 66261.24. A waste is considered hazardous if its total concentrations exceed the TTLCs or if the extract concentrations from the WET exceed the STLCs. A WET is required when the total concentrations exceed the STLC but are less than the TTLCs (Cal. Code Regs. tit. 22, div. 4.5, ch. 11, Appendix [app.] II [b]). For the removal action at IR Site 73, a portion of the soil subject to removal is expected to contain lead concentrations greater than 1,000 mg/kg (the lead TTLC limit) and would therefore be classified as non-RCRA hazardous waste. No other metals concentrations exceed their respective TTLC limit. The remaining soil subject to removal is expected to contain lead concentrations ranging from the cleanup goal of 317 mg/kg to 1,000 mg/kg and would require a WET because these concentrations exceed the STLC limit of 5 mg/L. This portion of the soil is considered to be a potential non-RCRA hazardous waste. The final classification would be made based on the results of the WET, which would be performed for all metals. If the waste has been determined to be similar to a RCRA hazardous waste, it does not need to be evaluated as a non-RCRA hazardous waste. For this removal action, it may not be necessary to evaluate the soil as a non-RCRA hazardous waste for off-site disposal, because the waste may be classified as a RCRA hazardous waste as discussed in Section B1.4.1. Based on the potential for the soil subject to removal to be classified as RCRA hazardous waste, the soil will be handled as RCRA hazardous during all on-site activities. Therefore, the requirements described in this section are not potential ARARs.

B1.4.3 Other California Waste Classifications

For waste discharged after 18 July 1997, solid waste classifications at Cal. Code Regs. tit. 27, §§ 20210, 20220, and 20230 are used to determine applicability of waste management requirements. These are summarized below.

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A “designated waste” under Cal. Code Regs. tit. 27, § 20210 is defined at California Water Code (Cal. Water Code) § 13173. Under Cal. Water Code § 13173, designated waste is hazardous waste that has been granted a variance from hazardous waste management requirements or nonhazardous waste that consists of or contains pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state.

A nonhazardous solid waste under Cal. Code Regs. tit. 27, § 20220 is all putrescible and nonputrescible solid, semisolid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid wastes, and other discarded waste (whether of solid or semisolid consistency), provided that such wastes do not contain wastes that must be managed as hazardous wastes or wastes that contain soluble pollutants in concentrations that exceed applicable water quality objectives or could cause degradation of waters of the state.

Under Cal. Code Regs. tit. 27, § 20230, inert waste is that subset of solid waste that does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives and does not contain significant quantities of decomposable waste.

The waste characterization requirements described in this section are not potential ARARs because the waste is assumed to be similar to RCRA hazardous waste and will be handled on-site under the identified RCRA ARARs.

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Section B2

CHEMICAL-SPECIFIC ARARs

Chemical-specific ARARs are generally health- or risk-based numerical values or methodologies applied to site-specific conditions that result in the establishment of a cleanup level. The removal action for this site is driven by the CERCLA Section 121(d)(1) requirements that response actions protect the environment. Based on the risk assessment for the site, it was determined that the site does not pose an unacceptable risk to human health, but that a removal action was necessary to reduce risk to ecological receptors from lead-impacted soil to acceptable levels (Section 2.5 of the main text of this EE/CA). Though the removal action is not driven by ARARs, other chemical-specific requirements were identified that could be potential ARARs for the site.

This section presents ARARs determination conclusions addressing potential chemical-specific ARARs for the proposed removal action followed by a more detailed discussion of the evaluated requirements where deemed necessary.

Potential federal and state chemical-specific ARARs are summarized in Tables B2-1 and B2-2, respectively, which are at the end of this section.

B2.1 SUMMARY OF ARARs CONCLUSIONS BY MEDIUM

Soil is the environmental medium potentially affected by the IR Site 73 removal action alternatives. The conclusions for ARARs pertaining to soil and other media are presented in the following sections.

B2.1.1 Groundwater ARARs Conclusions

Groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released or that there is the potential for release to groundwater. Therefore, no groundwater ARARs were identified for this removal action. Tables B2-1 and B2-2 summarize the evaluated chemical-specific requirements for groundwater and briefly discuss their ARAR status.

B2.1.2 Surface Water ARARs Conclusions

Neither surface water discharge nor surface water cleanup is included as a potential removal action alternative for IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to surface water. Therefore, no potential ARARs were identified for this removal action. Tables B2-1 and B2-2 summarize the evaluated chemical-specific requirements for surface water and briefly discuss their ARAR status.

B2.1.3 Soil ARARs Conclusions

In cases of soil excavation, sufficient data must be available to evaluate whether the material could be classified as a hazardous waste. Comparing the site waste to the definition of RCRA hazardous waste can make the determination of whether a waste is a RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, § 66261.21,

66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potentially applicable ARARs because they define RCRA hazardous waste.

Under the California RCRA Program, waste can be classified as non-RCRA state-only hazardous waste if it meets specified conditions, as defined in Cal. Code Regs. tit. 22, § 66261.22(a)(3) and (4), 66261.24(a)(2)–(a)(8), 66261.101, and 66261.3(a)(2)(C) or 66261.3(a)(2)(F). These requirements have been identified as potentially applicable because a determination will be made as to whether wastes generated may be classified as non-RCRA wastes.

B2.1.4 Air ARARs Conclusions

There are no chemical-specific ARARs for air for this EE/CA. Tables B2-1 and B2-2 summarize the evaluated requirements and briefly discuss their potential ARARs status. Additional potential air ARARs are included in the action-specific ARARs (Section B4).

B2.2 DETAILED DISCUSSION OF SOIL ARARs

This section is intended to provide a detailed discussion of federal and state ARARs by medium. There are no chemical-specific ARARs for groundwater, surface water, and air. Therefore, only soil ARARs are discussed.

The key threshold question for soil ARARs is whether or not the wastes located at IR Site 73 would be classified as hazardous waste. The soil may be classified as a federal hazardous waste as defined by RCRA and the state-authorized program, or as non-RCRA, state-regulated hazardous waste. If the soil is determined to be hazardous waste, the appropriate requirements will apply.

B2.2.1 Federal

RCRA Hazardous Waste and Groundwater Protection Standards. The federal RCRA requirements at 40 C.F.R. pt. 261 do not apply in California because the state RCRA program is authorized. The authorized state RCRA requirements are therefore considered potential federal ARARs (see Section B1.3.1). The applicability of RCRA requirements depends on whether the waste is a RCRA hazardous waste, whether the waste was initially treated, stored, or disposed after the effective date of the particular RCRA requirement, and whether the activity at the site constitutes treatment, storage, or disposal as defined by RCRA. However, RCRA requirements may be relevant and appropriate even if they are not applicable. Examples include activities that are similar to the definition of RCRA treatment, storage, or disposal for waste that is similar to RCRA hazardous waste.

The determination of whether a waste is a RCRA hazardous waste can be made by comparing the site waste to the definition of RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potentially applicable ARARs because they define RCRA hazardous waste. A waste can meet the definition of hazardous waste if it has the toxicity characteristic of hazardous waste. This determination is made by using the

Section B2 Chemical-Specific ARARs

TCLP. The maximum concentrations allowable for the TCLP listed in § 66261.24(a)(1)(B) are potential federal ARARs for determining whether the site has hazardous waste. If the site waste has concentrations exceeding these values, it is determined to be a characteristic RCRA hazardous waste. Based on the evaluation in Section B1.4.1, the soil subject to removal is considered to be a potential RCRA hazardous waste and will be treated as such during on-site activities.

Action-specific ARARs for treatment, storage, and disposal are evaluated in Section B4.

B2.2.2 State

RCRA Requirements. State RCRA requirements included within the U.S. EPA-authorized RCRA program for California are considered to be potential federal ARARs and are discussed above. When state regulations are either broader in scope or more stringent than their federal counterparts, they are considered potential state ARARs. State requirements such as the non-RCRA, state-regulated hazardous waste requirements may be potential state ARARs because they are not within the scope of the federal ARARs (57 Fed. Reg. 60848). The Cal. Code Regs. tit. 22, div. 4.5 requirements that are part of the state-approved RCRA program would be potential state ARARs for non-RCRA, state-regulated hazardous wastes.

The site waste characteristics need to be compared to the definition of non-RCRA, state-regulated hazardous waste. The non-RCRA, state-regulated waste definition requirements at Cal. Code Regs. tit. 22, § 66261.24(a)(2) are potentially applicable state ARARs for determining whether other RCRA requirements are potential state ARARs. This section lists the TTLCs and STLCS. The site waste may be compared to these thresholds to determine whether it meets the characteristics for a non-RCRA, state-regulated hazardous waste. However, based on the evaluation in Section B1.4.1, the soil subject to removal will be treated as potential RCRA hazardous waste and, as a result, the state RCRA requirements are not applicable for on-site activities.

Action-specific ARARs for treatment, storage, and disposal are evaluated in Section B4.

Table B2-1
Potential Federal Chemical-Specific^a ARARs by Medium

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
GROUNDWATER				
Safe Drinking Water Act (42 U.S.C., ch. 6A, § 300(f)-300(j)-26)^c				
National primary drinking water standards are health-based standards for public water systems (MCLs).	Public water system.	40 C.F.R. § 141.11-141.13, excluding § 141.11(d)(3), 141.15, 141.16, 141.61(a) and (c), and 141.62(b)	Not an ARAR	The NCP defines MCLs as relevant and appropriate for groundwater determined to be a current or potential source of drinking water in cases where MCLGs are not ARARs. However, groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
MCLGs pertain to known or anticipated adverse health effects (also known as recommended MCLs).	Public water system.	40 C.F.R. § 141.50-141.51	Not an ARAR	MCLGs that have nonzero values may be relevant and appropriate for groundwater determined to be a current or potential source of drinking water. However, groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
National secondary drinking water regulations are standards for the aesthetic qualities of public water systems (SMCLs).	Public water system.	40 C.F.R. § 143.3	Not an ARAR	SMCLs are federal contaminant levels intended as guidelines for the states. Because they are not enforceable, federal SMCLs are not ARARs.
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901-6991(j))^c				
Definition of RCRA hazardous waste.	Waste.	Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Not an ARAR	Applicable for determining whether waste is hazardous. However, groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
A solid waste is characterized as toxic based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)	Not an ARAR	Applicable for determining whether waste is hazardous. However, groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
Groundwater protection standards: Owners/operators of RCRA treatment, storage, or disposal facilities must comply with conditions in this section that are designed to ensure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits for contaminants of concern set forth under Cal. Code Regs. tit. 22, § 66264.94 in the uppermost aquifer underlying the waste management area of concern at the POC.	A regulated unit that receives or has received hazardous waste before 26 July 1982 or regulated units that ceased receiving hazardous waste prior to 26 July 1982 where constituents in or derived from the waste may pose a threat to human health or the environment.	Cal. Code Regs. tit. 22, § 66264.94, except 66264.94(a)(2) and 66264.94(b)	Not an ARAR	Groundwater is not included in the scope of this EE/CA. In addition, the site is not a regulated unit, and there is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
The POC is a vertical surface located at the hydraulically downgradient limit of the waste management area that extends through the uppermost aquifer underlying the regulated unit.	Hazardous waste treatment or disposal.	Cal. Code Regs. tit. 22, § 66264.95	Not an ARAR	The POC is a potential ARAR only when the RAO provides for achieving the cleanup level or concentration limit at and downgradient of the waste management area instead of throughout the contaminant plume. However, groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C., ch. 103, §§ 9601–9675)^c				
ACLs using a point of exposure beyond the facility boundary.	Known or projected points of entry from groundwater to surface water.	CERCLA § 121(d)(2)(B)(ii) 42 U.S.C., ch. 103, § 9621	Not an ARAR	Groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
Clean Water Act of 1977, as Amended (33 U.S.C., ch. 26, §§ 1251–1387)^c				
Federal ambient water quality criteria.	Discharges to waters of the United States and groundwater.	33 U.S.C. § 1314(a) and 42 U.S.C. § 9621(d)(2)	Not an ARAR	Federal ambient water quality criteria are not generally relevant and appropriate in selecting cleanup levels in groundwater. In addition, groundwater is not part of the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
Water quality standards.	Discharges to waters of the United States.	64 Fed. Reg. 19781 (22 April 1999) 40 C.F.R. § 131.36(b) and 131.38	Not an ARAR	There are no planned discharges to surface water from groundwater because groundwater is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater.
SURFACE WATER				
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901–6991)(i)^c				
Groundwater protection standards: Owners/operators of RCRA treatment, storage, or disposal facilities must comply with conditions in this section that are designed to ensure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits for contaminants of concern set forth under Cal. Code Regs. tit. 22, § 66264.94 in the uppermost aquifer underlying the waste management area of concern at the POC.	A regulated unit that receives or has received hazardous waste before 26 July 1982 or regulated units that ceased receiving hazardous waste prior to 26 July 1982 where constituents in or derived from the waste may pose a threat to human health or the environment.	Cal. Code Regs. tit. 22, § 66264.94, except 66264.94(a)(2) and 66264.94(b)	Not an ARAR	Neither groundwater nor surface water is included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to groundwater or surface water.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
Safe Drinking Water Act (42 U.S.C., ch. 6A, § 300f-300j)-26)^c				
National primary drinking water standards are health-based standards for public water systems (MCLs).	Public water system.	40 C.F.R. § 141.11-141.13, excluding § 141.11(d)(3), 141.15, 141.16, 141.61(a) and (c), and 141.62(b)	Not an ARAR	The NCP defines MCLs as relevant and appropriate for surface water determined to be a current or potential source of drinking water in cases where MCLGs are not ARARs. However, surface water is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to surface water.
Ensure safety of public water systems; remedial (or removal) actions must meet cleanup standards; MCLGs pertain to known or anticipated health effects (also known as recommended MCLs).	Public water system; remedial (or removal) activities impacting groundwater; groundwater that is a potential source of drinking water.	40 C.F.R. § 141.50-141.51	Not an ARAR	MCLGs that have nonzero values are relevant and appropriate for surface water determined to be a current or potential source of drinking water (NCP Section 300.430[e][2][i][B]-[D]). However, surface water is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to surface water.
National secondary drinking water regulations are standards for the aesthetic qualities of public water systems (SMCLs).	Public water system.	40 C.F.R. § 143.3	Not an ARAR	SMCLs are federal contaminant levels intended as guidelines for the states. Because they are not enforceable, federal SMCLs are not ARARs.
Clean Water Act, as Amended (33 U.S.C., ch. 26, §§ 1251-1387)^c				
Federal ambient water quality standards.	Discharges to waters of the United States.	40 C.F.R. § 131.36(b)	Not an ARAR	Federal ambient water quality standards would be applicable for any discharges to or cleanup of surface waters. However, there are no planned discharges to or cleanup of surface waters.

Table B2-1 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
Effluent limitations that meet technology-based requirements, including BCPCT and BAT economically achievable.	Discharges to waters of the United States.	33 U.S.C., ch. 26, § 1311(b)(2)	Not an ARAR	There are no planned discharges to waters of the United States.
Water quality criteria.	Discharges to waters of the United States and groundwater.	33 U.S.C., ch. 26, § 1314(a) and 42 U.S.C., ch. 103, § 9621(d)(2)	Not an ARAR	Federal water quality standards may be relevant and appropriate for any discharges to surface water. However, there are no planned discharges to surface waters.
Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C., ch. 103, §§ 9601–9675)^c				
ACLs using a point of exposure beyond the facility boundary.	Known or projected points of entry from groundwater to surface water.	CERCLA Section 121(d)(2)(B)(ii) 42 U.S.C., ch. 103, § 9621	Not an ARAR	There are no planned discharges to surface water.
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901–6991(j))^c				
Definition of RCRA hazardous waste.	Waste.	Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Not an ARAR	Applicable for determining whether waste is hazardous. However, surface water is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to surface water.
A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	40 C.F.R. pt. 261.24(a) Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)	Not an ARAR	Applicable for determining whether waste is hazardous. However, surface water is not included in the scope of this EE/CA. There is no indication that waste constituents have been released, or that there is the potential for release to surface water.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
SOIL				
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901-6991)(i)^c				
Definition of RCRA hazardous waste.	Waste.	Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	Applicable for determining whether waste is hazardous.
A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	40 C.F.R. pt. 261.24(a) Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)	Applicable	Applicable for determining whether waste is hazardous.
Groundwater Protection Standards: requirements to ensure that hazardous constituents entering the groundwater from a regulated unit do not exceed the concentration limits for contaminants of concern in the uppermost aquifer underlying the waste management area of concern at the POC.	A regulated unit that receives or has received hazardous waste before 26 July 1982 or regulated units that ceased receiving hazardous waste prior to 26 July 1982 where constituents in or derived from the waste may pose a threat to human health or the environment.	Cal. Code Regs. tit. 22, § 66264.94(a)(1) and (3), (c), (d), and (e)	Not an ARAR	The site is not a regulated unit and the proposed removal action does not include treatment, storage, or disposal on-site. There is no indication that waste constituents have been released or that there is the potential for release to groundwater.
LDRs prohibit disposal of hazardous waste unless treatment standards are met.	Hazardous waste land disposal.	Cal. Code Regs. tit. 22, § 66268.1(f)	Not an ARAR	There are no plans for land disposal of hazardous waste on-site.

(table continues)

Table B2-1 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
Treatment standards including technology requirements before hazardous waste can be disposed to land.	Hazardous waste land disposal.	Cal. Code Regs. tit. 22, § 66268.40	Not an ARAR	There are no plans for land disposal of hazardous waste on-site.
Universal Treatment Standards used to comply with treatment standards.	Hazardous waste land disposal.	Cal. Code Regs. tit. 22, § 66268.48	Not an ARAR	There are no plans for land disposal of hazardous waste on-site.
AIR				
Clean Air Act (42 U.S.C., ch. 85, §§ 7401–7671)^c				
NAAQS: Primary and secondary standards for ambient air quality to protect public health and welfare (including standards for particulate matter and lead).	Contamination of air affecting public health and welfare.	40 C.F.R. § 50.4–50.12	Not an ARAR	Not enforceable and therefore not an ARAR.

Notes:

- ^a many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables
- ^b only the substantive provisions of the requirements cited in this table are potential ARARs
- ^c statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only pertinent substantive requirements of the specific citations are considered potential ARARs

(table continues)

Table B2-1 (continued)

Acronyms/Abbreviations:

ACL	– alternative concentration limit
ARAR	– applicable or relevant and appropriate requirement
BAT	– best available technology
BCPCT	– best conventional pollution control technology
Cal. Code Regs.	– <i>California Code of Regulations</i>
CERCLA	– Comprehensive Environmental Response, Compensation, and Liability Act
C.F.R.	– <i>Code of Federal Regulations</i>
ch.	– chapter
DON	– Department of the Navy
EE/CA	– engineering evaluation/cost analysis
Fed. Reg.	– <i>Federal Register</i>
LDR	– land disposal restriction
MCL	– maximum contaminant level
MCLG	– maximum contaminant level goal
NAAQS	– National Ambient Air Quality Standards (primary and secondary)
NCP	– National Oil and Hazardous Substances Pollution Contingency Plan
POC	– point of compliance
pt.	– part
RCRA	– Resource Conservation and Recovery Act
§	– section
SMCL	– secondary maximum contaminant level
TCLP	– toxicity characteristic leaching procedure
tit.	– title
U.S.C.	– <i>United States Code</i>

Table B2-2
Potential State Chemical-Specific^a ARARs by Medium

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
GROUNDWATER, SURFACE WATER, SOIL, SEDIMENTS, AND AIR				
Cal-EPA Department of Toxic Substances Control^c				
Definition of "non-RCRA hazardous waste."	Waste.	Cal. Code Regs. tit. 22, § 66261.22(a)(3) and (4), § 66261.24(a)(2)-(a)(8), § 66261.101, § 66261.3(a)(2)(C) or § 66261.3(a)(2)(F)	Not an ARAR	Applicable for determining whether a waste is a non-RCRA hazardous waste. However, the soil subject to removal will be treated as potential RCRA hazardous waste during on-site activities.
State MCL list.	Source of drinking water.	Cal. Code Regs. tit. 22, §§ 64431 and 64444	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA.
State secondary MCL list.	Source of drinking water.	Cal. Code Regs. tit. 22, § 64449(a)	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA.
State and Regional Water Quality Control Boards^c				
Authorizes the SWRCB and RWQCB to establish in water quality control plans beneficial uses and numerical and narrative standards to protect both surface water and groundwater quality. Authorizes regional water boards to issue permits for discharges to land or surface or groundwater that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.		Cal. Water Code, div. 7, §§ 13241, 13243, 13263(a), 13269, and 13360 (Porter-Cologne Water Quality Control Act)	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA.

(table continues)

Table B2-2 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
Describes the water basins in the Santa Ana region, establishes beneficial uses of groundwater and surface water, establishes WQOs, including narrative and numerical standards, establishes implementation plans to meet WQOs and protect beneficial uses, and incorporates statewide water quality control plans and policies.		Cal. Water Code, div. 7, § 13304	Not an ARAR	Section 13304 does not constitute an ARAR because it does not itself establish or contain substantive environmental "standards, requirements, criteria or limitations" (CERCLA 121) and is not in itself directive in intent. In addition, Section 13304 is not more stringent than the substantive requirements of the potential state and federal ARARs identified in this table and Table B2-i.
		Comprehensive Water Quality Control Plan for the Santa Ana Region (Basin Plan) (Cal. Water Code § 13240)	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B2-2 (continued)

Requirement	Prerequisite	Citation^b	ARAR Determination	Comments
Establishes the policy that high-quality waters of the state "shall be maintained to the maximum extent possible" consistent with the "maximum benefit to the people of the State." It provides that whenever the existing quality of water is better than that required by applicable water quality policies, such existing high-quality water will be maintained until it has been demonstrated to the state that any change will be consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial use of such water, and will not result in water quality less than that prescribed in the policies. It also states that any activity that produces or may produce a waste or increased volume or concentration of waste and that discharges or proposes to discharge to existing high-quality waters will be required to meet waste-discharge requirements that will result in the best practicable treatment or control of the discharge.		Statement of Policy With Respect to Maintaining High Quality of Waters in California, SWRCB Res. 68-16	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Describes requirements for RWQCB oversight of investigation and cleanup and abatement activities resulting from discharges of hazardous substances. RWQCB may decide on cleanup and abatement goals and objectives for the protection of water quality and beneficial uses of water within each region. Establishes criteria for "containment zones" where cleanup to established water-quality goals is not economically or technically practicable.		Policies and procedures for investigation and cleanup and abatement of discharges under Cal. Water Code § 13304; SWRCB Res. 92-49	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B2-2 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
Incorporated into all regional board basin plans. Designates all groundwater and surface waters of the state as drinking water except where the total dissolved solids are greater than 3,000 ppm, the well yield is less than 200 gpd from a single well, the water is a geothermal resource or in a water conveyance facility, or the water cannot reasonably be treated for domestic use using either best management practices or best economically achievable treatment practices.		SWRCB Res. 88-63 (Sources of Drinking Water Policy)	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA.
Establishes concentration limits for cleanup actions, including groundwater, surface water, and the unsaturated zones for other than hazardous waste at background. Allows a higher cleanup limit (but not to exceed MCLs) if background is not technically or economically achievable.		Cal. Code Regs. tit. 27, §§ 20380(a); 20400(a), (c), (d), (e), and (g); and 20405	Not an ARAR	The site is not a regulated unit and the proposed removal action does not include on-site treatment, storage, or disposal.
Establishes concentration limits for cleanup actions, including groundwater, surface water, and the unsaturated zones for hazardous waste at background. Allows a higher cleanup limit (but not to exceed MCLs) if background is not technically or economically achievable.		Cal. Code Regs. tit. 23, §§ 2550(a); 2550.4(d), (e), and (f); and 2550.5	Not an ARAR	Cal. Code Regs. tit. 23, § 2550(a) addresses the general applicability of other standards in Chapter 15 and does not contain standards itself. Cal. Code Regs. tit. 23, §§ 2550.4(d), (e), and (f) and 2550.5 are not potential ARARs because the site is not a regulated unit and the proposed removal action does not include treatment, storage, or disposal on-site.

(table continues)

Table B2-2 (continued)

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
Establishes beneficial uses of ocean waters, numerical and narrative WQOs, effluent quality objectives including toxic material limitations, and discharge prohibitions.		California Ocean Plan, Water Quality Control Plan for Ocean Waters of California, SWRCB Res. 97-026 (Cal. Water Code § 13170.2)	Not an ARAR	Neither groundwater nor surface water is included in the scope of the EE/CA.
Requires analysis for each priority pollutant to determine if water-quality-based effluent limitation is required. Provides effluent limitation development methodology.	Discharges of toxic priority pollutants into inland surface waters, bays, or estuaries.	Policy for Implementation of Toxic Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Inland Surface Waters Plan) (SWRCB 2000), §§ 1.3 and 1.4	Not an ARAR	Discharges into inland surface waters, enclosed bays, or estuaries are not included in the scope of this EE/CA.
Definitions of designated waste, nonhazardous waste, and inert waste.		Cal. Code Regs. tit. 27, §§ 20210, 20220, and 20230	Not an ARAR	Potential ARARs for classifying waste and determining ARAR status of other requirements. The waste characterization requirements described in this section are not potential ARARs because the waste is assumed to be similar to RCRA hazardous waste and will be handled on-site under the identified RCRA ARARs.
California ambient air quality standards set legal limits on the level of an air pollutant in the outdoor (ambient) air necessary to protect public health.	Lead emissions of 1.5 µg/m ³ (30-day average)	Cal. Code Regs. tit. 17, §§ 70200	Not an ARAR	Not enforceable and, therefore, not a potential ARAR.

(table continues)

Table B2-2 (continued)

Notes:

- ^a many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables
- ^b only the substantive provisions of the requirements cited in this table are potential ARARs
- ^c statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only pertinent substantive requirements of specific citations are considered potential ARARs

Acronyms/Abbreviations:

ARAR – applicable or relevant and appropriate requirement
 Cal. Code Regs. – *California Code of Regulations*
 Cal-EPA – California Environmental Protection Agency
 Cal. Water Code – *California Water Code*
 CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
 div. – division
 DON – Department of the Navy
 EE/CA – engineering evaluation/cost analysis
 gpd – gallons per day
 IR – Installation Restoration (Program)
 µg/m³ – micrograms per cubic meter
 MCL – maximum contaminant level
 NPDES – National Pollutant Discharge Elimination System
 ppm – parts per million
 RCRA – Resource Conservation and Recovery Act
 Res. – resolution
 RWQCB – (California) Regional Water Quality Control Board, Santa Ana Region
 § – section
 SWRCB – (California) State Water Resources Control Board
 tit. – title
 WQO – water quality objective

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Section B3

LOCATION-SPECIFIC ARARs

Potential location-specific ARARs are identified and discussed in this section. The discussions are presented based on various attributes of the site location, such as whether it is within a floodplain. Additional surveys will be performed in connection with the removal action design and removal action to confirm location-specific ARARs where inadequate siting information currently exists, or in the event of changes to planned facility locations.

B3.1 SUMMARY OF LOCATION-SPECIFIC ARARs

Cultural and other natural resources are the resource categories relating to location-specific requirements potentially affected by the IR Site 73 removal action alternatives. The conclusions for ARARs pertaining to these resources are presented in the following sections.

B3.1.1 Cultural Resources ARARs Conclusions

IR Site 73 falls within the boundaries of a known prehistoric archeological site, CA-ORA-322/1,118. A determination was made that the site is eligible for inclusion in the National Register of Historic Places (Ogden 1997). The California State Historic Preservation Office concurred with this conclusion in 1999 (Abeyta, pers. com. 1999). Accordingly, the substantive portions of the National Historic Preservation Act (NHPA) have been identified as potentially applicable.

Previous studies have estimated that CA-ORA-322/1,118 was occupied 4,000 years ago. A great deal of intrasite variability was observed from samples, though they were not large enough to determine whether the variability stemmed from different activities within a single occupation or separate occupations over a long period of time. When sampling was conducted within IR Site 73, shell (probably from a midden deposit) was noted in several auger sites. The bulk of shell observed within IR Site 73 is pectin and chione, though other species were occasionally noted. For this reason, the substantive requirements of the Archaeological and Historic Preservation Act and the Archaeological Resources Protection Act have been identified as potentially applicable ARARs for the proposed removal action alternatives in this EE/CA.

B3.1.2 Wetlands Protection and Floodplain Management Conclusions

There are no wetland or floodplain resources ARARs for the proposed removal action alternatives for IR Site 73. Table B3-1 lists the requirements evaluated with brief discussions of ARAR status.

B3.1.3 Hydrologic Resources Conclusions

There are no hydrologic resources ARARs for the proposed removal action alternatives for IR Site 73. Table B3-1 lists the requirements evaluated with brief discussions of ARAR status.

B3.1.4 Biological Resources Conclusions

The reported terrestrial habitats at IR Site 73 are approximately 1,700 feet from a national wildlife refuge, which is an aquatic habitat. There are no National Wildlife Refuge System Administration Act ARARs.

Proposed removal options for IR Site 73 do not entail the taking of animals or birds. However, the substantive requirements of California Fish and Game Code (Cal. Fish & Game Code) § 3005(a) regarding the taking of birds and mammals are potentially relevant and appropriate.

B3.1.5 Coastal Resources Conclusions

There are no coastal resources ARARs for the proposed removal action alternatives for IR Site 73. Tables B3-1 and B3-2 list the requirements evaluated with brief discussions of ARAR status.

B3.1.6 Geologic Characteristics Conclusions

There are no geologic ARARs for the proposed removal action alternatives for IR Site 73. Table B3-1 lists the requirements evaluated with brief discussions addressing ARAR status.

B3.2 DETAILED DISCUSSION OF ARARs

The following subsections provide a detailed discussion of federal and state ARARs by location-specific resources. Pertinent and substantive provisions of the potential ARARs listed and described below were reviewed to determine whether they are potential federal or state ARARs for the IR Site 73 soil EE/CA.

Requirements that are determined to be ARARs or TBCs are identified in Table B3-1 (federal) and Table B3-2 (state) at the end of this section. ARARs determinations are presented in the column denoted by the heading ARAR Determination. Determinations of status for location-specific ARARs were generally based on consultation of maps or lists included in the regulation or prepared by the administering agency. References to the document or agency consulted are provided in the Comments column and may be provided in footnotes to the table. Specific issues concerning some of the requirements are discussed in the following sections.

B3.2.1 Cultural Resources ARARs

IR Site 73 falls within the boundaries of a known prehistoric archeological site, CA-ORA-322/1,118. A determination was made that the site is eligible for inclusion in the National Register of Historic places (Ogden 1997). The California State Historic Preservation Office concurred with this conclusion in 1999 (Abeyta, pers. com. 1999).

Previous studies have estimated that CA-ORA-322/1,118 was occupied 4,000 years ago. A great deal of intrasite variability was observed from samples, though they were not large enough to determine whether the variability stemmed from different activities

Section B3 Location-Specific ARARs

within a single occupation or separate occupations over a long period of time. When sampling was conducted within IR Site 73, shell, probably from a midden deposit, was noted in several auger sites. The bulk of shell observed within IR Site 73 is pecten and chione, though other species were occasionally noted.

The following requirements were evaluated as potential ARARs for this EE/CA:

- NHPA of 1966, as amended (16 U.S.C. §§ 470–470x-6, 36 C.F.R. pt. 800, 40 C.F.R. § 6.301[b])
- Archaeological and Historic Preservation Act (16 U.S.C. § 469–469c-1, 40 C.F.R. § 6.301[c])
- Historic Sites, Buildings, and Antiquities Act of 1935 (16 U.S.C. §§ 461–467, 40 C.F.R. § 6.301[a])
- Archaeological Resources Protection Act of 1979, as amended (Public Law [Pub. L.] No. 96-95, 16 U.S.C. § 470aa–470mm)

B3.2.1.1 NATIONAL HISTORIC PRESERVATION ACT OF 1966, AS AMENDED

Pursuant to Sections 106 and 110(f) of the NHPA (16 U.S.C. §§ 470–470x-6, and its implementing regulations [36 C.F.R. pt. 800]), as amended, CERCLA remedial (or removal) actions are required to take into account the effects of remedial (or removal) activities on any historic properties included on or eligible for inclusion on the National Register of Historic Places (National Register) [<http://tps.cr.nps.gov/nhl/result.cfm>]. The National Register is a list of districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. Section 110(f) of the NHPA of 1966, as amended, requires that before approval of any federal undertaking that may directly and adversely affect any national historic landmark, the head of the responsible federal agency will, to the maximum extent possible, undertake such planning and actions as may be necessary to minimize harm to the landmark, and will afford the Advisory Council a reasonable opportunity to comment on the undertaking.

The NHPA requires federally funded projects to identify and mitigate impacts of project activities on properties included in or eligible for the National Register of Historic Places. IR Site 73 falls within the boundaries of a known prehistoric archeological site, CA-ORA-322/1,118. A determination was made that the site is eligible for inclusion in the National Register of Historic places (Ogden 1997). The California State Historic Preservation Office concurred with this conclusion in 1999 (Abeyta, pers. com. 1999). Accordingly, the substantive portions of the NHPA have been identified as potentially applicable.

B3.2.1.2 ARCHAEOLOGICAL AND HISTORIC PRESERVATION ACT

The Archaeological and Historic Preservation Act, 16 U.S.C. § 469–469c-1, provides for the preservation of historical and archeological data that might otherwise be lost as a result of dam construction or alterations of the terrain. If activities in connection with any federal construction project or federally approved project may cause irreparable loss

to significant scientific, prehistorical, or archeological data, the act requires the agency undertaking that project to preserve the data or request the Department of the Interior (DOI) to do so. This act differs from the NHPA in that it encompasses a broader range of resources than those listed on the National Register and mandates only the preservation of the data (including analysis and publication).

The Archaeological and Historic Preservation Act requires that for federally approved projects that may cause irreparable loss to significant scientific, prehistoric, historic, or archeological data, the data must be preserved by the agency undertaking the project or the agency undertaking the project may request DOI to do so. IR Site 73 falls within the boundaries of a known prehistoric archeological site, CA-ORA-322/1,118. Previous studies have estimated that CA-ORA-322/1,118 was occupied 4,000 years ago. A great deal of intrasite variability was observed from samples, though they were not large enough to determine whether the variability stemmed from different activities within a single occupation or separate occupations over a long period of time. When sampling was conducted within IR Site 73, shell (probably from a midden deposit) was noted in several auger sites. The bulk of shell observed within IR Site 73 is pecten and chione, though other species were occasionally noted. For this reason, the substantive requirements of the Archaeological and Historic Preservation Act have been identified as potentially applicable ARARs for the proposed removal action alternatives in this EE/CA.

B3.2.1.3 HISTORIC SITES, BUILDINGS, AND ANTIQUITIES ACT OF 1935

The purpose of the Historic Sites, Buildings, and Antiquities Act (16 U.S.C. §§ 461–467) and its implementing regulations (40 C.F.R. § 6.301[c]) is to encourage the long-term preservation of nationally significant properties that illustrate or commemorate the history and prehistory of the United States, including historic landmarks (36 C.F.R. § 65) and natural landmarks (36 C.F.R. § 62). Properties designated as National Historic Landmarks in California are listed in the National Register [<http://tps.cr.nps.gov/nhl/result.cfm>]. Natural landmarks are nationally significant examples of a full range of ecological and geological features that constitute the nation's natural heritage. In conducting an environmental review of a proposed action, the responsible official shall consider the existence and location of natural landmarks using information provided by the National Park Service pursuant to 36 C.F.R. § 62.6(d) to avoid undesirable impacts on such landmarks. These requirements are not substantive and are not potential ARARs. However, if it is determined that areas to be disturbed during the removal action are potentially eligible for the National Natural Historic Landmark Program, the State Historic Preservation Officer should be contacted. There are no known landmarks at the IR Site 73.

B3.2.1.4 ARCHAEOLOGICAL RESOURCES PROTECTION ACT OF 1979

Pub. L. No. 96-95 (16 U.S.C. § 470aa–470mm) was enacted in 1979 and amended in 1988 and applies to all lands to which the fee title is held by the United States. The purpose of this statute is to provide for the protection of archeological resources on federal and Indian lands. The act prohibits unauthorized excavation, removal, damage,

Section B3 Location-Specific ARARs

alteration, or defacement of archeological resources located on public lands unless such activity is pursuant to a permit issued under Section 470cc.

IR Site 73 falls within the boundaries of a known prehistoric archeological site, CA-ORA-322/1,118. Previous studies have estimated that CA-ORA-322/1,118 was occupied 4,000 years ago. A great deal of intrasite variability was observed from samples, though they were not large enough to determine whether the variability stemmed from different activities within a single occupation or separate occupations over a long period of time. When sampling was conducted within IR Site 73, shell (probably from a midden deposit) was noted in several auger sites. The bulk of shell observed within IR Site 73 is pecten and chione, though other species were occasionally noted. For this reason, the substantive requirements of the Archaeological Resources Protection Act have been identified as potentially applicable ARARs for the proposed removal action alternatives in this EE/CA.

B3.2.2 Biological Resources ARARs

The following requirements were evaluated as potential ARARs for this EE/CA:

- Endangered Species Act (ESA) of 1973 (substantive provisions of 16 U.S.C. §§ 1531–1543)
- Migratory Bird Treaty Act of 1972 (substantive provisions of 16 U.S.C. §§ 703–712)
- Marine Mammal Protection Act (substantive provisions of 16 U.S.C. §§ 1361–1421h)
- Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§ 1801–1882)
- Wilderness Act (16 U.S.C. §§ 1131–1136, 50 C.F.R. § 35.1–35.14)
- California ESA (Cal. Fish & Game Code, ch. 1.5, §§ 2050–2116)

B3.2.2.1 FEDERAL

Endangered Species Act of 1973

The ESA of 1973 (16 U.S.C. §§ 1531–1543) provides a means for conserving various species of fish, wildlife, and plants that are threatened with extinction. The ESA defines an endangered species and provides for the designation of critical habitats. Federal agencies may not jeopardize the continued existence of any listed species or cause the destruction or adverse modification of critical habitat. Under Section 7(a) of the ESA, federal agencies must carry out conservation programs for listed species. The Endangered Species Committee may grant an exemption for agency action if reasonable mitigation and enhancement measures such as propagation, transplantation, and habitat acquisition and improvement are implemented. Consultation regulations at 50 C.F.R. § 402 are administrative in nature and are therefore not ARARs. However, they may be TBCs to comply with the substantive provisions of the ESA. Neither threatened nor

endangered species have been observed at IR Site 73; therefore, the substantive requirements of this statute are not potential ARARs.

Migratory Bird Treaty Act of 1972

The Migratory Bird Treaty Act (16 U.S.C. §§ 703–712) prohibits at any time, using any means or manner, the pursuit, hunting, capturing, and killing or attempting to take, capture, or kill any migratory bird. This act also prohibits the possession, sale, export, and import of any migratory bird or any part of a migratory bird, as well as nests and eggs. A list of migratory birds for which this requirement applies is found at 50 C.F.R. § 10.13. Migratory birds, however, have not been observed at IR Site 73; therefore, the substantive requirements of this statute are not potential ARARs.

Marine Mammal Protection Act

The Marine Mammal Protection Act (16 U.S.C. §§ 1361–1421h) prohibits the taking of a marine mammal on the high seas or in a harbor or other place under the jurisdiction of the United States. It prohibits the possession, transport, and sale of a mammal or marine mammal product, unless authorized under law. The prohibitions that are potentially pertinent to CERCLA actions are at 16 U.S.C. § 1372(a)(2). Marine mammals have not been observed at IR Site 73; therefore, this requirement is not a potential ARAR.

Magnuson-Stevens Fishery Conservation and Management Act of 1976, as amended

The purpose of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §§ 1801–1882) is to conserve and manage the fishery resources found off the coasts of the United States, the anadromous species, and the continental shelf fishery resources of the United States. It establishes a fishery conservation zone within which the United States has exclusive fishery management prerogatives. There are no fishery resources at IR Site 73; therefore, this requirement is not a potential ARAR.

Wilderness Act

The Wilderness Act (16 U.S.C. § 1131) and its accompanying implementing regulations (50 C.F.R. § 35.1–35.14) create the National Wilderness Preservation System. The intent of the law is to administer and manage units of this system (i.e., wilderness areas) in order to preserve their wilderness character and to leave them unimpaired for future use as wilderness. IR Site 73 is not a federally owned wilderness area; therefore, this requirement is not a potential ARAR.

B3.2.2.2 STATE

California Endangered Species Act

Neither endangered species nor rare or native species have been observed at IR Site 73. Substantive provisions of the California ESA, set forth in the Cal. Fish & Game Code §§ 2050–2068 and 2070–2079, have been identified previously by the state as potential state ARARs. However, §§ 2050–2068 and 2070–2079 were determined to be procedural and nonsubstantive.

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California Fish and Game Code

Proposed removal options for IR Site 73 do not entail the taking of animals or birds. However, the substantive requirements of Cal. Fish & Game Code § 3005(a) regarding the taking of birds and mammals are potentially relevant and appropriate.

B3.2.3 Coastal Resources ARARs

There are no coastal resources ARARs for the proposed removal action alternatives for IR Site 73; however, the following requirements were reviewed as potential ARARs for this EE/CA:

- Coastal Zone Management Act (CZMA) (substantive provisions of 16 U.S.C. §§ 1451–1464, 15 C.F.R. § 930)
- California Coastal Act of 1976 (California Public Resources Code [Cal. Pub. Res. Code] §§ 30000–30900; Cal. Code Regs. tit. 14, §§ 13001–13666.4)

B3.2.3.1 FEDERAL

Coastal Zone Management Act

The CZMA (16 U.S.C. §§ 1451–1464) and the accompanying implementing regulations in 15 C.F.R. § 930 require that federal agencies conducting or supporting activities directly affecting the coastal zone conduct or support those activities in a manner that is consistent with the approved state coastal zone management programs. A state coastal zone management program (developed under state law and guided by the CZMA) sets forth objectives, policies, and standards to guide public and private uses of lands and water in the coastal zone.

B3.2.3.2 STATE

California Coastal Act of 1976

The Cal. Pub. Res. Code §§ 30000–30900 and Cal. Code Regs. tit. 14, §§ 13001–13666.4 regulate activities associated with development to control direct significant impacts on coastal waters and to protect state and national interests in California coastal resources. The California Coastal Act policies set forth in the act constitute the standards used by the California Coastal Commission in its coastal development permit decisions and for the review of local coastal programs. These policies contain the following substantive requirements: protection and expansion of public access to the shoreline and recreation opportunities (Cal. Pub. Res. Code §§ 30210–30224); protection, enhancement, and restoration of environmentally sensitive habitats including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, grasslands, streams, lakes, and habitat for rare or endangered plants or animals (Cal. Pub. Res. Code §§ 30230–30240), protection of productive agricultural lands, commercial fisheries, and archeological resources (Cal. Pub. Res. Code §§ 30234, 30241–30244), protection of the scenic beauty of coastal landscapes (Cal. Pub. Res. Code § 30251), and provisions for expansion, in an

Section B3 Location-Specific ARARs

environmentally sound manner, of existing industrial ports and electricity-generating power plants (Cal. Pub. Res. Code § 30264).

**Table B3-1
Potential Federal Location-Specific ARARs**

Location	Requirement	Prerequisite	Citation^a	ARAR Determination	Comments
National Historic Preservation Act of 1966, as Amended (16 U.S.C. § 470-470x-6)^b					
Historic project owned or controlled by federal agency	Action to preserve historic properties; planning of action to minimize harm to properties listed on or eligible for listing on the National Register of Historic Places.	Property included in or eligible for the National Register of Historic Places.	16 U.S.C. § 470-470x-6 36 C.F.R. pt. 800 40 C.F.R. § 6.301(b)	Applicable	Substantive provisions are potentially applicable because IR Site 73 falls within a known archeological site, CA-ORA-322/1,118.
Archaeological and Historic Preservation Act (16 U.S.C. § 469-469c-1)^b					
Within area where action may cause irreparable harm, loss, or destruction of significant artifacts	Construction on previously undisturbed land would require an archeological survey of the area. Data recovery and preservation would be required if significant archeological or historical data were found on-site. The responsible official or Secretary of the Interior is authorized to undertake data recovery and preservation.	Regulated alteration of terrain caused as a result of a federal construction project or federally licensed activity or program where action may cause irreparable harm, loss, or destruction of significant artifacts.	16 U.S.C. § 469-469c-1 40 C.F.R. § 6.301(c)	Applicable	Substantive provisions are potentially applicable because IR Site 73 falls within a known archeological site, CA-ORA-322/1,118.
Historic Sites, Buildings, and Antiquities Act of 1935 (16 U.S.C. §§ 461-467)^b					
Historic sites	Avoid undesirable impacts on landmarks.	Areas designated as historic sites.	16 U.S.C. §§ 461-467 40 C.F.R. § 6.301(a)	Not an ARAR	Though IR Site 73 falls within a known archeological site, CA-ORA-322/1,118, these requirements are not substantive and are not potential ARARs.

(table continues)

Table B3-1 (continued)

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Archaeological Resources Protection Act of 1979, as Amended (16 U.S.C. § 470aa-470mm)^b					
Archaeological resources on federal land	Prohibits unauthorized excavation, removal, damage, alteration, or defacement of archaeological resources located on public lands unless such action is conducted pursuant to a permit.	Archaeological resources on federal land.	Pub. L. No. 96-95 16 U.S.C. § 470aa-470mm	Applicable	Substantive provisions are potentially applicable because IR Site 73 falls within a known archeological site, CA-ORA-322/1,118.
Exec. Order No. 11990, Protection of Wetlands^b					
Wetland	Action to minimize the destruction, loss, or degradation of wetlands.	Wetland meeting definition of Section 7.	40 C.F.R. § 6.302(a)	Not an ARAR	The IR Site 73 removal action alternative will not take place at or near a wetland.
Exec. Order No. 11988, Floodplain Management^b					
Within floodplain	Actions taken should avoid adverse effects, minimize potential harm, restore and preserve natural and beneficial values.	Action that will occur in a floodplain (i.e., lowlands) and relatively flat areas adjoining inland and coastal waters and other flood-prone areas.	40 C.F.R. § 6.302(b) 40 C.F.R. pt. 6, app. A	Not an ARAR	The IR Site 73 removal action alternative will not take place within a 100-year floodplain.
Clean Water Act of 1977, as Amended, Section 404 (33 U.S.C. § 1344)^b					
Wetland	Action to prohibit discharge of dredged or fill material into wetland without permit.	Wetland as defined by Exec. Order No. 11990 Section 7.	33 U.S.C. § 1344	Not an ARAR	The IR Site 73 removal action alternative will not include the discharge of dredged or fill material to a wetland.

(table continues)

Table B3-1 (continued)

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Resource Conservation and Recovery Act (33 U.S.C. §§ 6901–6991(ii))^b					
Within 100-year floodplain	Facility must be designed, constructed, operated, and maintained to avoid washout.	RCRA hazardous waste; treatment, storage, or disposal of hazardous waste.	Cat. Code Regs. tit. 22, § 66264.18(b)	Not an ARAR	The IR Site 73 removal action alternative will not take place within a 100-year floodplain.
Wild and Scenic Rivers Act (16 U.S.C. §§ 1271–1287)^b					
Within area affecting national wild, scenic, or recreational river	Avoid taking or assisting in action that will have direct adverse effect on scenic river.	Activities that affect or may affect any of the rivers specified in 16 U.S.C. § 1276(a).	16 U.S.C. §§ 1271–1287	Not an ARAR	The IR Site 73 removal action alternative will not impact wild, scenic, or recreational rivers.
Fish and Wildlife Coordination Act (16 U.S.C. §§ 661–666c)^b					
Area affecting stream or other water body	Action taken should protect fish or wildlife.	Diversion, channeling, or other activity that modifies a stream or other water body and affects fish or wildlife.	16 U.S.C. § 662	Not an ARAR	The IR Site 73 removal action alternative does not include modification of a stream or other water body and affect fish or wildlife.
Rivers and Harbors Act of 1899 (33 U.S.C. §§ 401–413)^b					
Navigable waters	Permits required for structures or work in or affecting navigable waters.	Activities affecting navigable waters.	33 U.S.C. § 403 33 C.F.R. § 322	Not an ARAR	The IR Site 73 removal action alternative will not include activities, such as dredging, that could affect navigable waters.

(table continues)

Table B3-1 (continued)

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Endangered Species Act of 1973 (16 U.S.C. §§ 1531–1543)^b					
Habitat upon which endangered species or threatened species depend	Federal agencies may not jeopardize the continued existence of any listed species or cause the destruction or adverse modification of critical habitat. The Endangered Species Committee may grant an exemption for agency action if reasonable mitigation and enhancement measures such as propagation, transplantation, and habitat acquisition and improvement are implemented.	Determination of effect upon endangered or threatened species or its habitat. Critical habitat upon which endangered species or threatened species depend.	16 U.S.C. § 1536(a), (b)(1)(B)	Not an ARAR	The IR Site 73 removal action alternative is not planned at or near threatened or endangered species habitats.
Migratory Bird Treaty Act of 1972 (16 U.S.C. §§ 703–712)^b					
Migratory bird area	Protects almost all species of native migratory birds in the United States from unregulated “take,” which can include poisoning at hazardous waste sites.	Presence of migratory birds.	16 U.S.C. § 703	Not an ARAR	Migratory birds have not been observed at or near IR Site 73.
Marine Mammal Protection Act (16 U.S.C. §§ 1361–1421h)^b					
Marine mammal area	Protects any marine mammal in the United States except as provided by international treaties from unregulated “take.”	Presence of marine mammals.	16 U.S.C. § 1372(a)(2)	Not an ARAR	Marine mammals are not present at or near IR Site 73. In addition, the removal action alternative will not constitute a take of a marine mammal.

(table continues)

Table B3-1 (continued)

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Magnuson-Stevens Fishery Conservation and Management Act of 1976, as Amended (16 U.S.C. §§ 1801-1882)^b					
Fishery under management	Provides for conservation and management of specified fisheries within specified fishery conservation zones.	Presence of managed fisheries.	16 U.S.C. §§ 1801-1882	Not an ARAR	A managed fishery does not exist at or near IR Site 73.
National Wildlife Refuge System Administration Act of 1996 (16 U.S.C. § 668dd-668ee)^b					
Wildlife refuge	No person shall take any animal or plant on any national wildlife refuge, except as authorized under 50 C.F.R. § 27.51. The disposing or dumping of wastes is prohibited.	Area designated as part of National Wildlife Refuge System.	16 U.S.C. § 668dd-668ee Substantive provisions of 50 C.F.R. § 27.11-27.97	Not an ARAR	IR Site 73 is approximately 1,700 feet from a national wildlife refuge.
Wilderness Act (16 U.S.C. §§ 1131-1136)^b					
Wilderness area	Area must be administered in such a manner as will leave it unimpaired as wilderness and preserve its wilderness character.	Federally owned area designated as wilderness area.	16 U.S.C. §§ 1131-1136 50 C.F.R. §§ 35.1-35.14	Not an ARAR	The area to be affected by the removal action alternative is not a federally owned wilderness area.
Coastal Zone Management Act (16 U.S.C. §§ 1451-1464)^b					
Within coastal zone	Conduct activities in a manner consistent with approved state management programs.	Activities affecting the coastal zone including lands thereunder and adjacent shore land.	16 U.S.C. § 1456(c) 15 C.F.R. § 930	Not an ARAR	The IR Site 73 removal action alternative will not affect a coastal zone. In addition, the DON does not view the procedure of preparing a formal coastal consistency document and seeking California Coastal Commission concurrence as a valid ARAR.

(table continues)

Table B3-1 (continued)

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Resource Conservation and Recovery Act (42 U.S.C. §§ 6901–6991(i))^b					
Within 61 meters (200 feet) of a fault displaced in Holocene time	New treatment, storage, or disposal of hazardous waste prohibited.	RCRA hazardous waste; treatment, storage, or disposal of hazardous waste.	Cal. Code Regs. tit. 22, § 66264.18(a)	Not an ARAR	IR Site 73 is not near a Holocene fault.
Within salt dome formation, underground mine, or cave	Placement of noncontainerized or bulk liquid hazardous waste prohibited.	RCRA hazardous waste; placement.	Cal. Code Regs. tit. 22, § 66264.18(c)	Not an ARAR	IR Site 73 is not near a salt formation, mine, or cave.

Notes:

^a only the substantive provisions of the requirements cited in this table are potential ARARs

^b statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs

Acronyms/Abbreviations:

app. – appendix

ARAR – applicable or relevant and appropriate requirement

Cal. Code Regs. – *California Code of Regulations*

C.F.R. – *Code of Federal Regulations*

DON – Department of the Navy

Exec. Order No. – executive order number

IR – Installation Restoration (Program)

pt. – part

Pub. L. No. – public law number

RCRA – Resource Conservation and Recovery Act

§ – section

tit. – title

U.S.C. – *United States Code*

Table B3-2
Potential State Location-Specific ARARs

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
California Endangered Species Act (Cal. Fish & Game Code §§ 2050-2116)^b					
Rare native plants	No person may take rare or endangered native plants.	Activity that would involve the taking of a rare or endangered native plant.	Cal. Fish & Game Code §§ 1908	Not an ARAR	Rare and endangered native plants have not been observed at IR Site 73.
Endangered species habitat	Department policy and legislative findings and definitions for significant natural areas.	Activity taking place in an endangered species habitat and significant natural area.	Cal. Fish & Game Code §§ 2050-2068	Not an ARAR	Procedural; not a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation."
Endangered species habitat	Procedures for listing endangered species.	Threatened or endangered species determination.	Cal. Fish & Game Code § 2070	Not an ARAR	Procedural; not a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation."
Endangered species habitat	No person shall import, export, take, possess, or sell any endangered or threatened species or part or product thereof.	Threatened or endangered species determination on or before 01 January 1985 or a candidate species with proper notification.	Cal. Fish & Game Code § 2080	Not an ARAR	Neither threatened nor endangered species/habitats have been observed at IR Site 73.
Endangered species habitat	Ensures that action taken will not jeopardize the survival and reproduction of any threatened or endangered species.	Threatened or endangered species determination or a candidate species with proper notification.	Cal. Fish & Game Code §§ 2090-2096	Not an ARAR	Not effective after 01 January 1994.

Table B3-2 (continued)

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
Wildlife species	Prohibits the taking (including poisoning) of birds and mammals.	Activity that would involve the taking of birds or mammals.	Cal. Fish & Game Code §§ 3005(a)	Relevant and appropriate	The soil at the site may potentially be a risk to birds at the site that is similar to a poison. The removal action alternative at IR Site 73 will not involve the taking of birds or mammals.
Aquatic habitat/species	Prohibits the deposition of materials into state waters that will be deleterious to aquatic habitats or species.	Activity that would involve deposition of materials to waters of the state.	Cal. Fish & Game Code §§ 5650	Not an ARAR	The IR Site 73 removal action alternative will not include deposition of any materials to waters of the state.
California Coastal Act of 1976^b					
Coast	Regulates activities associated with development to control direct significant impacts on coastal waters and to protect state and national interests in California coastal resources.	Any activity which could impact coastal waters and resources.	Cal. Pub. Res. Code §§ 30000-30900; Cal. Code Regs. tit. 14, §§ 13001-13666.4	Not an ARAR	The IR Site 73 removal action alternative will not impact coastal waters.

Notes:

- ^a only the substantive provisions of the requirements cited in this table are potential ARARs
- ^b statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs follow each general heading; only substantive requirements of the specific citations are considered potential ARARs

Acronyms/Abbreviations:

ARAR – applicable or relevant and appropriate requirement
 Cal. Code Regs. – *California Code of Regulations*
 Cal. Fish & Game Code – *California Fish and Game Code*
 Cal. Pub. Res. Code – *California Public Resources Code*
 DON – Department of the Navy
 IR – Installation Restoration (Program)
 § – section
 tit. – title

Section B4

ACTION-SPECIFIC ARARs

This EE/CA report evaluates removal action alternatives for IR Site 73 NAVWPNSTA Seal Beach. This ARARs analysis is based on two alternatives for the site. Alternative 1 is no action and Alternative 2 entails excavation with off-site disposal. Detailed descriptions of the removal alternatives are provided in the main text of this EE/CA report.

Tables B4-1 and B4-2 at the end of this section present and evaluate federal and state potential action-specific ARARs, respectively, for IR Site 73. A discussion of the requirements determined to be pertinent to each alternative being evaluated for IR Site 73 is presented in this section. A discussion of how the alternative complies with each identified ARAR is also provided.

B4.1 ALTERNATIVE 1, NO ACTION

There is no need to identify ARARs for the no action alternative because ARARs apply to "any removal or remedial action conducted entirely on-site" and "no action" is not a removal or remedial action (CERCLA Section 121(e), 42 U.S.C. § 9621[e]). CERCLA § 121 (42 U.S.C. § 9621) cleanup standards for selection of a Superfund remedy, including the requirement to meet ARARs, are not triggered by the no action alternative (U.S. EPA 1991b). Therefore, a discussion of compliance with action-specific ARARs is not appropriate for this alternative.

B4.2 ALTERNATIVE 2, EXCAVATION WITH OFF-SITE DISPOSAL

Discussions of compliance with federal and state action-specific ARARs for Alternative 2 are presented in the following sections.

B4.2.1 Federal

The key threshold question for soil ARARs is whether or not the waste generated during the removal action at IR Site 73 would be classified as a hazardous waste. The soil may be classified as federal hazardous waste as defined by RCRA and the state-authorized program, as non-RCRA state-regulated hazardous waste, or as nonhazardous waste. If the soil is determined to be hazardous waste, the appropriate requirements will apply. Comparing the site waste to the definition of RCRA hazardous waste can make the determination of whether a waste is a RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11, 66264.13(a) and (b), and 66262.34 are potentially applicable ARARs because they identify the RCRA hazardous waste requirements associated with generation and on-site accumulation.

For drip pad design, construction, monitoring, and closure, Cal. Code Regs. tit. 22, § 66265.443, 66265.444, and 66265.445 requirements for accumulating waste piles on-site for less than 90 days were evaluated. The substantive requirements are potentially applicable ARARs for accumulating waste generated during the removal action, and for characterization and staging prior to off-site disposal.

SCAQMD Rule 403 applies to any source of dust or fumes, including lead-contaminated soil. The rule states activities shall not cause or allow emissions of fugitive dust such that

the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow levels of particulate matter less than 10 micrometers in diameter to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples. This rule is potentially applicable to removal activities at the site.

B4.2.2 State

Actions impacting birds or mammals are regulated in Cal. Fish & Game Code § 3005(a). These requirements prohibit the taking of birds and mammals, including the taking by poison. Though it is not anticipated that birds or mammals will be taken during removal activities at IR Site 73, the substantive provisions pertaining to the take of birds or mammals with a poisonous substance are potentially applicable.

SCAQMD Rule 402 for nuisance emissions was evaluated as a potential ARAR for the potential air emissions at IR Site 73. This is not a potential federal ARAR because it is not included in the Site Inspection Plan. The nuisance standard states that a person shall not discharge from any source such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to a considerable number of persons or to the public.

The nuisance rule includes subjective, nonenvironmental criteria such as “annoyance,” “comfort,” and “repose.” As such, the DON is troubled by the vague and subjective nature of the nuisance rule and the lack of objective “standards, requirements, criteria, or limitations” within the meaning of Section 121(d)(2) of CERCLA. Other federal and state ARARs addressing actual and potential air emissions will assure adequate protection of human health and the environment. SCAQMD Rule 402 was not determined to be an ARAR.

**Table B4-1
Potential Federal Action-Specific ARARs**

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Resource Conservation and Recovery Act (42 U.S.C. §§ 6901–6991(ii)) ^b						
On-site waste generation	Person who generates waste shall determine if that waste is a hazardous waste.	Generator of waste.	Cal. Code Regs. tit. 22, § 66262.10(a), 66262.11	2		Applicable for any operation where hazardous waste is generated. There is a potential for excavated soils to be classified as RCRA hazardous waste due to localized concentrations of lead. The determination of whether wastes generated during removal activities are hazardous will be made at the time the wastes are generated.
	Requirements for analyzing waste for determining whether waste is hazardous.	Generator of waste.	Cal. Code Regs. tit. 22, § 66264.13(a) and (b)	2		Applicable for any operation where hazardous waste is generated. There is a potential for excavated soils to be classified as RCRA hazardous waste due to localized concentrations of lead. The determination of whether wastes generated during removal activities are hazardous will be made at the time the wastes are generated.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Hazardous waste accumulation	On-site hazardous waste accumulation is allowed for up to 90 days as long as the waste is stored in containers or tanks, on drip pads, inside buildings, is labeled and dated, etc.	Accumulation of hazardous waste.	Cal. Code Regs. tit. 22, § 66262.34	2	Applicable for any operation where hazardous waste is generated. The determination of whether wastes generated during removal action activities are hazardous will be made at the time the wastes are generated.
Site closure	Minimize the need for further maintenance controls and minimize or eliminate, to the extent necessary to protect human health and the environment, postclosure escape of hazardous waste, hazardous constituents, leachate, contaminated rainfall or runoff, or waste decomposition products to groundwater or surface water or to the atmosphere.	Hazardous waste management facility.	Cal. Code Regs. tit. 22, § 66264.111(a) and (b)	Not an ARAR	No land-based disposal units are planned for waste management.

(table continues)

Table B4-1 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Clean closure	During the partial and final closure periods, all contaminated equipment, structures and soils shall be properly disposed or decontaminated by removing all hazardous waste and residues.	Hazardous waste management facility.	Cal. Code Regs. tit. 22, § 66264.114	Not an ARAR	The proposed removal action does not include clean closure of a hazardous waste management facility.
Container storage	Containers of RCRA hazardous waste must be: <ul style="list-style-type: none"> • maintained in good condition, • compatible with hazardous waste to be stored, and • closed during storage except to add or remove waste. Inspect container storage areas weekly for deterioration.	Storage of RCRA hazardous waste not meeting small-quantity generator criteria held for a temporary period greater than 90 days before treatment, disposal, or storage elsewhere, in a container.	Cal. Code Regs. tit. 22, § 66264.171, .172, .173	Not an ARAR	No container storage is proposed for the removal action.
			Cal. Code Regs. tit. 22, § 66264.174	Not an ARAR	Container storage is not proposed.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Container storage (continued)	Place containers on a sloped, crack-free base, and protect from contact with accumulated liquid. Provide containment system with a capacity of 10 percent of the volume of containers of free liquids. Remove spilled or leaked waste in a timely manner to prevent overflow of the containment system.	Storage in a container of RCRA hazardous waste not meeting small-quantity generator criteria held for a temporary period greater than 90 days before treatment, disposal, or storage elsewhere.	Cal. Code Regs. tit. 22, § 66264.175(a) and (b)	Not an ARAR	The DON does not plan to store hazardous wastes in containers.
	Keep containers of ignitable or reactive waste at least 50 feet from the facility property line.	Ignitable or reactive waste.	Cal. Code Regs. tit. 22, § 66264.176	Not an ARAR	The DON does not plan to store hazardous wastes in containers.
	Keep incompatible materials separate. Separate incompatible materials stored near each other by a dike or other barrier.		Cal. Code Regs. tit. 22, § 66264.177	Not an ARAR	The DON does not plan to store hazardous wastes in containers.
	At closure, remove all hazardous waste and residues from the containment system, and decontaminate or remove all containers and liners.		Cal. Code Regs. tit. 22, § 66264.178	Not an ARAR	The DON does not plan to store hazardous wastes in containers.
Placement of waste in land disposal units	Movement of excavated materials to new location and placement in or on land will trigger LDRs for the excavated waste or closure requirements for the unit in which the waste is being placed.	Materials containing RCRA hazardous wastes subject to LDRs are placed in another unit.	Cal. Code Regs. tit. 22, § 66268.40	Not an ARAR	Disposal or placement of waste on land is not included as part of the proposed removal alternative. Soil excavated and sifted during proposed removal activities will be removed for off-site disposal.

(table continues)

Table B4-1 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Placement of waste in land disposal units (continued)	Treatment of waste subject to ban on land disposal must attain levels achievable by BDAT for each hazardous constituent in each listed waste, if residual is to be land disposed.	Placement of RCRA hazardous waste in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, or underground mine or cave.	Cal. Code Regs. tit. 22, § 66268.42	Not an ARAR		Disposal or placement of waste on land is not included as part of the proposed removal alternative. Soil excavated and sifted during proposed removal activities will be removed for off-site disposal.
	BDAT standards for spent solvent wastes and dioxin-containing wastes are based on one of four technologies or combinations: for wastewaters, (1) steam stripping, (2) biological treatment, or (3) carbon absorption; and for all other wastes, (4) incineration. Any technology may be used, however, if it will achieve the concentration levels specified.	Solvent or dioxin-containing wastes.	Cal. Code Regs. tit. 22, § 66268.30, § 66268.31	Not an ARAR		Neither solvent- nor dioxin-containing wastes have been identified at the site.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Clean closure	Remove or decontaminate all waste residues, contaminated containment system components (liners, etc.), contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste. If waste is left on-site, closure and postclosure care requirements are necessary.	Surface impoundments, container or tank liners, and hazardous waste residues or contaminated soil (including soil from dredging or soil disturbed in the course of drilling or excavation) returned to land. Not applicable to material treated, stored, or disposed only before the effective date of the requirements, or if treated <i>in situ</i> or consolidated within the area of contamination.	Cal. Code Regs. tit. 22, § 66264.228(a), (b), (c)–(k), (m), (o)–(q) except as it cross-references procedural requirements such as closure plans and annual reports	Not an ARAR	No land-based disposal units are planned for waste management.

(table continues)

Table B4-1 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Waste pile	Use a single liner and leachate collection system. Waste put into waste pile is subject to land ban regulations.	RCRA hazardous waste, noncontainerized accumulation of solid, nonflammable hazardous waste that is used for treatment or storage.	Cal. Code Regs. tit. 22, § 66264.251 (except 251[j], 251[e][11])	Not an ARAR	Wastes are not planned to be managed as waste piles as part of this action.
	Alternative requirements that are protective of human health or the environment may replace design, operating, or closure standards for temporary tanks and container storage areas.		Cal. Code Regs. tit. 22, § 66264.553(b) and (d)	Not an ARAR	The use of temporary units is not anticipated during implementation of the proposed removal alternative.
	Drip pad design, construction, monitoring and closure requirements for accumulating waste on-site for less than 90 days.	Hazardous waste accumulated on-site less than 90 days.	Cal. Code Regs. tit. 22, § 66265.443, 66265.444, and 66265.445	2	Potentially applicable for accumulating waste, generated during removal action, for characterization and staging prior to off-site disposal.

(table continues)

Table B4-1 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Waste pile (continued)	Prevent run-on and control and collect runoff from a 24-hour 25-year storm (waste piles, land treatment facilities, landfills). Prevent overtopping of surface impoundments.	RCRA hazardous waste treated, stored, or disposed after the effective date of the requirements.	Cal. Code Regs. tit. 22, § 66264.221(c), (e), (h); § 66264.251(c), (d), (f), (g), (h), (k); § 66264.273(c), (d), (j)(1); § 66264.301(c), (d), (f), (g)	Not an ARAR	The storage, treatment, or disposal of RCRA hazardous waste in piles, landfills, and surface impoundments is not included in the proposed removal alternative for IR Site 73.
Closure of waste pile	At closure, owner shall remove or decontaminate all waste residues, contaminated containment system components, contaminated subsoils, and structures and equipment contaminated with waste and leachate, and manage them as hazardous waste. If waste is left on-site, perform postclosure care in accordance with the closure and postclosure care requirements that apply to landfills.	Waste pile used to store hazardous waste.	Cal. Code Regs. tit. 22, § 66264.258(a) and (b) except references to procedural requirements	Not an ARAR	Waste piles will not be used to store hazardous waste.

(table continues)

Table B4-1 (continued)

<i>EE/CA Alternatives: 1 – No action³ and 2 – Excavation with off-site disposal</i>						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
CAMU	An area at a RCRA facility may be designated as a CAMU. Placement of remediation wastes into or within a CAMU does not constitute land disposal of hazardous wastes nor creation of a unit subject to minimum technology requirements or LDRs.	RCRA CAMU.	Cal. Code Regs. tit. 22, § 66264.552(c) and (e)	Not an ARAR		Removal actions will not involve creation of a CAMU.
Discharge to groundwater from regulated unit	Owners/operators of RCRA surface impoundment, waste pile, land treatment unit, or landfill shall conduct a monitoring and response program for each regulated unit.	Surface impoundment, waste pile, land treatment unit, or landfill for which constituents in or derived from waste in the unit may pose a threat to human health or the environment.	Cal. Code Regs. tit. 22, § 66264.91(a) and (c), except as it cross-references permit requirements	Not an ARAR		RCRA surface impoundments, waste piles, land treatment units, or landfills are not pertinent to the scope of the proposed removal alternative for IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
POC	The POC is a vertical surface, located at the hydraulically downgradient limit of the waste management area that extends through the uppermost aquifer underlying the regulated unit.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.95	Not an ARAR		Groundwater is not included in the scope of the proposed removal alternative for IR Site 73.

(table continues)

Table B4-1 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Monitoring	Requirements for monitoring groundwater, surface water, and the vadose zone.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.97	Not an ARAR	There is no regulated unit and no treatment, storage, or disposal proposed. Groundwater and surface water are not included in the scope of the proposed removal alternative for IR Site 73.
	Requirements for a detection monitoring program.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.98	Not an ARAR	There is no regulated unit and no treatment, storage, or disposal proposed. Groundwater and surface water are not included in the scope of the proposed removal alternative for IR Site 73.
	Requirements for an evaluation monitoring program.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.99	Not an ARAR	There is no regulated unit and no treatment, storage, or disposal proposed. Groundwater and surface water are not included in the scope of the proposed removal alternative for IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B4-1 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Corrective action	The owner or operator required to take corrective action under Cal. Code Regs. tit. 22, § 66264.91 shall take corrective action to remediate releases from the regulated unit and to ensure that the regulated unit achieves compliance with the water quality protection standard.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.100(a) and (b)	Not an ARAR		Corrective action is not pertinent to the scope of the proposed removal alternative for IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
	The owner or operator shall implement corrective action measures that ensure that constituents of concern achieve their respective concentration limits at all monitoring points and throughout the zone affected by the release, including any portions of the affected zone that extend beyond the facility boundary, by removing the waste constituents or treating them in place. The owner or operator shall take other action to prevent noncompliance due to a continued or subsequent release including, but not limited to, source control.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.100(c)	Not an ARAR		Corrective action is not pertinent to the scope of the proposed removal alternative for IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B4-1 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Monitoring	The owner or operator shall establish and implement, in conjunction with the corrective action measures, a water quality monitoring program that will demonstrate the effectiveness of the corrective action program and be effective in determining compliance with the water quality protection standard and in determining the success of the corrective action measures under subsection (c) of this section.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.100(d)	Not an ARAR	Corrective action is not pertinent to the scope of the proposed removal alternative for IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Completion of response action	Completion of the corrective action program must be demonstrated to be in compliance with the water quality protection standard based on the results of sampling and analysis for all constituents of concern for a period of 1 year and establish a detection monitoring program.	Hazardous waste treatment, storage, or disposal facility.	Cal. Code Regs. tit. 22, § 66264.100(g)(1) and (3)	Not an ARAR	Corrective action is not pertinent to the scope of the proposed removal alternative for IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Clean Air Act (42 U.S.C. §§ 7401–7671) ^b						
Discharge to air	NAAQS – primary and secondary standards for ambient air quality to protect public health and welfare (including standards for particulate matter and lead).	Contamination of air affecting public health and welfare.	40 C.F.R. § 50.4–50.12	Not an ARAR		Federal NAAQS are nonenforceable standards.
Fugitive dust emissions	Shall not cause or allow emissions of fugitive dust such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow PM ₁₀ levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples.	Applies to any source of dust or fumes, including lead-contaminated soil.	SCAQMD Rule 403	2		Dust emissions may occur during removal activities. Engineering controls will be used to limit dust emissions.

(table continues)

Table B4-1 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Federal Hazardous Materials Transportation Law (49 U.S.C. §§ 5101–5127) ^b						
Transportation of hazardous material	No person shall represent that a container or package is safe unless it meets the requirements of 49 U.S.C. §§ 5101–5127.	Interstate carriers transporting hazardous waste and substances by motor vehicle. Transportation of hazardous material under contract with any department of the executive branch of the federal government.	49 C.F.R. § 171.2(f)	Not an ARAR		Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	No person shall unlawfully alter or deface labels, placards or descriptions, packages, containers, or motor vehicles used for transportation of hazardous materials.		49 C.F.R. § 171.2(g)	Not an ARAR		Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
Hazardous materials marking, labeling, and placarding	Each person who offers hazardous material for transportation or each carrier that transports it shall mark each package, container, and vehicle in the manner required.	Person who offers hazardous material for transportation; carries hazardous material; or packages, labels, or placards hazardous material.	49 C.F.R. § 172.300	Not an ARAR		Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.

(table continues)

Table B4-1 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Hazardous materials marking, and labeling, and placarding (continued)	Each person offering nonbulk hazardous materials for transportation shall mark the proper shipping name and identification number (technical name) and consignee's name and address.		49 C.F.R. § 172.301	Not an ARAR		Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	Hazardous materials for transportation in bulk packages must be labeled with proper ID number, specified in 49 C.F.R. § 172.101 table, with required size of print. Packages must remain marked until cleaned or refilled with material requiring other marking.		49 C.F.R. § 172.302	Not an ARAR		Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	No package marked with a proper shipping name or ID number may be offered for transport or transported unless the package contains the identified hazardous material or its residue.		49 C.F.R. § 172.303	Not an ARAR		Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.

(table continues)

Table B4-1 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Hazardous materials marking, labeling, and placarding (continued)	The markings must be durable, in English, in contrasting colors, unobscured, and away from other markings.		49 C.F.R. § 172.304	Not an ARAR	Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	Nonbulk combination packages containing liquid hazardous materials must be packed with closures upward, and marked with arrows pointing upward.		49 C.F.R. § 172.312	Not an ARAR	Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	Labeling of hazardous material packages shall be as specified in the list.		49 C.F.R. § 172.400	Not an ARAR	Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.
	Each bulk packaging or transport vehicle containing any quantity of hazardous material must be placarded on each side and each end with the type of placards listed in Tables 1 and 2 of 49 C.F.R. § 172.504.	Each person who offers for transport or transports any hazardous materials shall comply with these placarding requirements.	49 C.F.R. § 172.504	Not an ARAR	Under CERCLA, ARARs evaluation is made for proposed on-site activities. On-site transportation of hazardous materials is not part of the proposed removal alternative.

(table continues)

Table B4-1 (continued)

Notes:

- ^a discussion of compliance with action-specific ARARs is not appropriate
- ^b statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader. Listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of specific citations are considered potential ARARs

Acronyms/Abbreviations:

A – applicable
 ARAR – applicable or relevant and appropriate requirement
 BDAT – best demonstrated available technology
 Cal. Code Regs. – *California Code of Regulations*
 CAMU – corrective action management unit
 CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act
 C.F.R. – *Code of Federal Regulations*
 DON – Department of the Navy
 EE/CA – engineering evaluation/cost analysis
 IR – Installation Restoration (Program)
 LDR – land disposal restriction
 NAAQS – National Ambient Air Quality Standards (primary and secondary)
 PM₁₀ – particulate matter, less than 10 micrometers in diameter
 POC – point of compliance
 RA – relevant and appropriate
 RCRA – Resource Conservation and Recovery Act
 § – section
 SCAQMD – South Coast Air Quality Management District
 TBC – to be considered
 tit. – title
 U.S.C. – *United States Code*

Table B4-2
Potential State Action-Specific ARARs

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
State Water Resources Control Board and Regional Water Quality Control Board ^b						
Actions affecting water quality	Authorizes the SWRCB and RWQCB to establish in water quality control plans beneficial uses and numerical and narrative standards to protect both surface water and groundwater quality. Authorizes regional water boards to issue permits for discharges to land or surface water or groundwater that could affect water quality, including NPDES permits, and to take enforcement action to protect water quality.		Cal. Water Code, div. 7, §§ 13241, 13243, 13263(a), 13269, and 13360 (Porter-Cologne Water Quality Control Act); other provisions are not ARARs	Not an ARAR		Groundwater is not part of the scope for the proposed removal action at IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
	Describes the water basins in the Santa Ana Region, establishes beneficial uses of surface water and groundwater, establishes water quality objectives, including narrative and numerical standards, establishes implementation plans to meet water quality objectives and protect beneficial uses, and incorporates statewide water quality control plans and policies.		Comprehensive Water Quality Control Plan for the Santa Ana Region	Not an ARAR		Groundwater is not part of the scope for the proposed removal action at IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B4-2 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Discharges to high-quality waters	Incorporated into all Regional Board Basin Plans. Requires that quality of waters of the state that is better than needed to protect all beneficial uses be maintained unless certain findings are made. Discharges to high quality waters must be treated using best practicable treatment or control necessary to prevent pollution or nuisance and to maintain the highest quality water. Requires cleanup to background water quality or to lowest concentrations technically and economically feasible to achieve. Beneficial uses must, at least, be protected.		SWRCB Res. 68-16 (Policy With Respect to Maintaining High Quality of Waters in California) (Cal. Water Code § 13140, CWA regulations 40 C.F.R. § 131.12)	Not an ARAR	SWRCB Res. No. 68-16 is a potential ARAR for new discharges, not for cleanup or migration of groundwater. Groundwater is not part of the scope for the proposed removal action at IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Actions affecting water quality	Provides water quality criteria for classifying the beneficial use of groundwater as municipal/domestic. Criteria outlined as follows: total dissolved solids ≤ 3,000 mg/L or yielding 200 gallons per day or serving as a public water system.	Applies in determining beneficial uses for waters that may be affected by discharges of waste.	SWRCB Res. 88-63 ("Sources of Drinking Water Policy") (as contained in the Basin Plans)	Not an ARAR	Groundwater is not part of the scope for the proposed removal action at IR Site 73.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Actions affecting water quality (continued)	Establishes policies and procedures for the oversight of investigations and cleanup and abatement activities resulting from discharges of waste which affect or threaten water quality. Requires cleanup of all waste discharged and restoration of affected water to background conditions. Requires actions for cleanup and abatement to conform to Res. 68-16 and applicable provisions of Cal. Code Regs. tit. 23, div. 3, ch. 15 as feasible.	Cleanup and discharge of groundwater to groundwater or surface water and establishment of containment zones.	SWRCB Res. 92-49 (Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Cal. Water Code § 13304) (Cal. Water Code § 13307) (02 October 1996)		Not an ARAR	Groundwater is not part of the scope for the proposed removal action at IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Discharge to ocean	Describes policy for protection of ocean water quality. Includes beneficial use designations, water quality objectives, general requirements, compliance criteria, and discharge prohibitions. All discharges to the ocean must comply with criteria set forth in the Ocean Plan.	Plan is applicable to point source discharges to the ocean and nonpoint sources of waste discharge. Plan provides water quality objectives for receiving waters. Plan does not apply to discharges to enclosed bays and estuaries.	SWRCB Res. 97-026, California Ocean Plan (23 July 1997), policy set forth in Cal. Water Code, div. 7, §§ 13000, 13170, and 13170.2		Not an ARAR	There are no planned discharges to ocean waters as part of the proposed removal alternative for IR Site 73.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		Comments
				A	RA TBC	
Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop. 65) ^b						
Discharge to drinking water source	Prohibits discharge of known human carcinogens or reproductive toxins to source of drinking water or on land where it could pass into a source of drinking water. Chemicals and applicable regulatory levels are listed in Cal. Code Regs. tit. 22, § 12000–14000.	Discharge of known human carcinogens or reproductive toxins.	Safe Drinking Water and Toxic Enforcement Act of 1986 (Prop. 65), Cal. Health & Safety Code, div. 20, § 25249.5–.13	Not an ARAR		This statute is expressly not directly applicable to the federal government. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
California Environmental Quality Act ^b						
Actions by state	Requires analysis of environmental impacts of response actions, comparison of alternative actions, and implementation of appropriate mitigation measures. No hazardous substances may remain on-site unless further mitigation is not feasible.	State actions.	CEQA, California Pub. Res. Code §§ 21100–21178, 15000, and 15002	Not an ARAR		Requirements of CEQA are applicable to state actions and not those of the federal government. The CERCLA process fulfills these requirements (see Section B1.3.2).

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Toxic Pits Cleanup Act ^b						
Action at surface impoundment	Authorizes the RWQCB to regulate surface impoundments containing hazardous waste, as defined in Cal. Code Regs. tit. 22. Prohibits discharges to such surface impoundments unless they meet specified siting and design requirements. Requires compliance with specific investigation, remediation, and reporting requirements.	Surface impoundment.	Cal. Health & Safety Code § 25208 (Toxic Pits Cleanup Act)		Not an ARAR	There is no planned discharge to or cleanup of surface impoundment as part of the proposed removal alternative.
State Water Resources Control Board ^b						
Landfill capping	Alternatives to construction or prescriptive standards.	Cal. Code Regs. tit. 27 requirements are only applicable for waste discharged after 18 July 1997 unless otherwise noted.	Cal. Code Regs. tit. 27, §§ 20080 (b) and (c) and 21090		Not an ARAR	The proposed removal alternative does not include an alternative cap or cover.

(table continues)

Table B4-2 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Monitoring	Persons responsible for discharges at units that were CAI on or before 27 November 1984 may be required to develop and implement a monitoring program in accordance with subdiv. 1, subch. 3, art. 1 (Cal. Code Regs. tit 27, §§ 20380–20435).	CAI waste management unit before 27 November 1984.	Cal. Code Regs. tit. 27, § 20080(g)	Not an ARAR		IR Site 73 does not constitute a CAI waste management unit.
Disposal of waste	Requires that designated waste as defined at Cal. Water Code § 13173 be discharged to Class I or Class II waste management units.	Discharges of designated waste after 18 July 1997 (nonhazardous waste that could cause degradation of surface or ground waters) to land for treatment, storage, or disposal.	Cal. Code Regs. tit. 27, § 20210	Not an ARAR		Waste discharge is not a part of the proposed removal alternative.
	Requires that nonhazardous solid waste as defined at § 20220(a) be discharged to a classified waste management unit.	Discharge of nonhazardous solid waste after 18 July 1997 to land for treatment, storage, or disposal.	Cal. Code Regs. tit. 27, § 20220(b), (c), and (d)	Not an ARAR		Waste discharge is not a part of the proposed removal alternative.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Disposal of waste (continued)	Inert waste as defined at § 20230(a) need not be discharged at a classified unit.	Applies to discharges of inert waste to land after 18 July 1997 for treatment, storage, or disposal.	Cal. Code Regs. tit. 27, § 20230(b)	Not an ARAR		Waste discharge is not a part of the proposed removal alternative.
Monitoring	Requires detection monitoring. Once a significant release has occurred, evaluation or corrective action monitoring is required.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20385(a)(1) and (a)(2)	Not an ARAR		Waste discharge is not a part of the proposed removal alternative. Treatment, storage, and disposal on-site are not proposed. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Groundwater cleanup	Requires identification of the point of compliance, hydraulically downgradient from the area where waste was discharged to land.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20405	Not an ARAR		Groundwater is not part of the scope for the proposed removal action at IR Site 73. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Monitoring	Requires monitoring for compliance with removal action objectives for 3 years from the date of achieving cleanup levels. Requires general soil, surface water, and groundwater monitoring.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20410	Not an ARAR		Waste discharge is not a part of the proposed removal alternative.
				Not an ARAR		Waste discharge is not a part of the proposed removal alternative.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Groundwater monitoring	Provides minimum requirements for a groundwater detection monitoring program.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20420	Not an ARAR		Waste discharge is not a part of the proposed removal alternative. No on-site treatment, storage, or disposal is proposed. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
	Requires evaluation monitoring once a significant release is detected.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20425	Not an ARAR		Waste discharge is not a part of the proposed removal alternative. There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.
Corrective action	Requires implementation of corrective action measures that ensure that cleanup levels are achieved throughout the zone affected by the release by removing the waste constituents or treating them in place. Source control may be required. Also requires monitoring to determine the effectiveness of the corrective actions.	Discharge of waste to land after 18 July 1997.	Cal. Code Regs. tit. 27, § 20430 except § 20430(g)(2)	Not an ARAR		There is no indication that waste constituents have been released or that there is the potential for release to groundwater or surface water.

(table continues)

Table B4-2 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Clean closure	When the discharger has successfully completed clean closure, the landfill shall no longer be subject to the SWRCB-promulgated requirements of this title; otherwise, the discharger shall close the landfill and carry out postclosure maintenance as though the discharger had not attempted clean closure. For the purpose of this paragraph, the discharger shall have successfully clean-closed a landfill only if all waste materials, contaminated components of the containment system, and affected geologic materials—including soils and rock beneath and surrounding the unit and groundwater polluted by a release from the unit—are either removed and discharged to an appropriate unit or treated to the extent that they no longer pose a threat to water quality; and all remaining containment features are inspected for contamination and, if contaminated, discharged in accordance with para. (f)(1).		Cal. Code Regs. tit. 27, § 21090(f)	Not an ARAR	IR Site 73 is not a landfill. In addition, clean closure of a waste management unit is not a part of the proposed removal action.

(table continues)

Table B4-2 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Monitoring	Detection monitoring program may be required at CAI sites before the effective date of these requirements.	CAI site before 27 November 1984.	Cal. Code Regs. tit. 23, § 2510(g)	Not an ARAR		IR Site 73 was not CAI before 27 November 1984.
Detection monitoring	Detection monitoring program.	Cal. Code Regs. tit. 23 requirements are only applicable to waste discharges to land after 27 November 1984.	Cal. Code Regs. tit. 23, § 2550.8	Not an ARAR		IR Site 73 was not CAI before 27 November 1984.
Evaluation monitoring	Evaluation monitoring program.	Cal. Code Regs. tit. 23 requirements are only applicable to waste discharges to land after 27 November 1984.	Cal. Code Regs. tit. 23, § 2550.9	Not an ARAR		IR Site 73 was not CAI before 27 November 1984.
California Fish and Game Code^b						
Actions involving wildlife	Designation of the Department of Fish and Game as trustee for State Fish and Wildlife Resources.		Cal. Fish & Game Code § 711.7	Not an ARAR		Not a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation."

(table continues)

Table B4-2 (continued)

<i>EE/CA Alternatives: 1 – No action³ and 2 – Excavation with off-site disposal</i>						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Rare native plants	Action must be taken to conserve native plants. Prohibits the releases and/or actions that would have a deleterious effect on species or habitat.	Rare native plants.	Cal. Fish & Game Code § 1900		Not an ARAR	Rare native plants have not been observed on or near IR Site 73.
Aquatic and wildlife species/habitat	Conservation objectives and policy for natural resources.		Cal. Fish & Game Code § 2014		Not an ARAR	This is not a "cleanup standard, standard of control," or "other substantive requirement, criteria, or limitation."
Actions impacting endangered species/habitat	Action must be taken to conserve endangered species. Prohibits releases that would have a deleterious effect on species.	Endangered or threatened species.	Cal. Fish & Game Code § 2080		Not an ARAR	Endangered species have not been observed on or near IR Site 73.
Actions impacting birds or mammals	Prohibits the taking of birds and mammals, including the taking by poison.	Birds and mammals.	Cal. Fish & Game Code § 3005(a)	2		Procedural aspects are not ARARs; certain substantive provisions pertaining to take of birds or mammals with a poisonous substance are potentially applicable. The removal activity will prevent "take" of birds and mammals by removing soil contaminants.
Actions impacting birds of prey	Action must be taken to prevent the take, possession, or destruction of any birds of prey or their eggs.	Birds of prey.	Cal. Fish & Game Code § 3503.5		Not an ARAR	Birds of prey have not been observed at IR Site 73.

(table continues)

Table B4-2 (continued)

<i>EE/CA Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal</i>						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Actions impacting fully protected bird species/habitat	Action must be taken to prevent the taking of fully protected birds.	Fully protected bird species/habitat.	Cal. Fish & Game Code § 3511	Not an ARAR		Fully protected birds and/or their habitats have not been observed at IR Site 73.
Actions impacting migratory nongame birds	Actions must be taken to prevent the take or possession of any migratory nongame birds.	Migratory nongame birds.	Cal. Fish & Game Code § 3513	Not an ARAR		Migratory nongame birds have not been observed at IR Site 73.
Actions impacting mountain lions	Action must be taken to avoid injuring, taking, possessing, or transporting any mountain lion.		Cal. Fish & Game Code § 4800	Not an ARAR		Mountain lions and/or their habitat have not been observed on or near IR Site 73.
Actions impacting fully protected mammals	Action must be taken to assure that no fully protected mammals are taken or possessed at any time.		Cal. Fish & Game Code § 4700	Not an ARAR		Fully protected mammals and/or their habitats have not been observed on or near IR Site 73.
Actions impacting fully protected reptiles and amphibians	Prohibits the take or possession of fully protected reptiles and amphibians as listed.		Cal. Fish & Game Code § 5050	Not an ARAR		Such reptiles and amphibians and/or their habitats have not been observed on or near IR Site 73.
Discharge to waters of the state	Prohibits the passage of enumerated substances or materials into waters of the state deleterious to fish, plant life, or birds.		Cal. Fish & Game Code §§ 5650(a) and (f); 5651	Not an ARAR		There is no potential for contaminants to pass into water during removal activities at IR Site 73.

(table continues)

Table B4-2 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal					
Action	Requirement	Prerequisites	Citation	ARAR Determination	
				A	RA TBC
Actions impacting tidal invertebrates	Prohibits the taking of mollusks, crustaceans, or other invertebrates without a permit.	Tidal invertebrates.	Cal. Fish & Game Code § 8500	Not an ARAR	Tidal invertebrates have not been observed on or near IR Site 73.
California Code of Regulations, Title 14, Natural Resources^b					
Activity affecting protected amphibians and reptiles	Actions must be taken to avoid taking listed protected amphibians and reptiles.		Cal. Code Regs. tit. 14, §§ 40, 41 and 42	Not an ARAR	Such amphibians and reptiles and/or their habitats have not been observed on or near IR Site 73.
Activity affecting fur-bearing animals	Action must be taken to avoid taking listed fur-bearing animals.		Cal. Code Regs. tit. 14, § 460	Not an ARAR	Such fur-bearing animals and/or their habitats have not been observed on or near IR Site 73.
Air Quality Management District/Air Pollution Control District^b					
Nuisance emissions	Nuisance standard that states a person shall not discharge from any source such quantities of air contaminants or other materials that cause injury, detriment, nuisance, or annoyance to a considerable number of persons or to the public.	Applies to discharge to air.	SCAQMD Rule 402	Not an ARAR	The nuisance rule includes subjective, nonenvironmental criteria such as "annoyance," "comfort," and "repose." As such, the DON is troubled by the vague and subjective nature of the nuisance rule and the lack of objective "standards, requirements, criteria, or limitations" within the meaning of Section 121(d)(2) of CERCLA. Other federal and state ARARs addressing actual and potential air emissions will assure adequate protection of human health and the environment.

(table continues)

Table B4-2 (continued)

Notes:

- ^a discussion of compliance with action-specific ARARs is not appropriate
- ^b statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific actions are considered potential ARARs.

Acronyms/Abbreviations:

A – applicable

ARAR – applicable or relevant and appropriate requirement

art. – article

CAI – closed, abandoned, or inactive

Cal. Code Regs. – *California Code of Regulations*

Cal. Fish & Game Code – *California Fish and Game Code*

Cal. Health & Safety Code – *California Health and Safety Code*

Cal. Pub. Res. Code – *California Public Resources Code*

Cal. Water Code – *California Water Code*

CEQA – *California Environmental Quality Act*

CERCLA – *Comprehensive Environmental Response, Compensation, and Liability Act*

C.F.R. – *Code of Federal Regulations*

ch. – chapter

CWA – Clean Water Act

div. – division

DON – Department of the Navy

EE/CA – engineering evaluation/cost analysis

IR – Installation Restoration (Program)

mg/L – milligrams per liter

NPDES – National Pollutant Discharge Elimination System

para. – paragraph

Prop. – proposition

RA – relevant and appropriate

Res. – resolution

RWQCB – (California) Regional Water Quality Control Board, Santa Ana Region

§ – section

SCAQMD – South Coast Air Quality Management District

subch. – subchapter

SWRCB – (California) State Water Resources Control Board

TBC – to be considered

tit. – title

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Section B5 SUMMARY

Controlling ARARs have been identified in the text of this appendix for each medium, location, and proposed removal action. The substantive provisions of the following requirements were identified as potential ARARs that affected the development of removal action objectives for IR Site 73:

- RCRA hazardous waste requirements at Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100
- Characterization of solid waste as toxic based on TCLP at 40 C.F.R. 261.24(a) and Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)
- NHPA
- Archaeological and Historic Preservation Act
- Archaeological Resources Protection Act
- Cal. Fish & Game Code § 3005(a) regarding the taking of birds and mammals
- RCRA on-site waste generation at Cal. Code Regs. tit. 22, §§ 66262.10(a), 66262.11, 66264.13(a) and (b)
- RCRA hazardous waste accumulation requirements at Cal. Code Regs. tit. 22, § 66262.34
- RCRA drip pad design at Cal. Code Regs. tit. 22, § 66265.443, 66265.444, and 66265.445
- SCAQMD Rule 403

In cases of soil excavation, sufficient data must be available to evaluate whether the material could be classified as a hazardous waste. Comparing the site waste to the definition of RCRA hazardous waste can make the determination of whether a waste is a RCRA hazardous waste. The RCRA requirements at Cal. Code Regs. tit. 22, §§ 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100 are potentially applicable ARARs because they define RCRA hazardous waste.

The requirements under 40 C.F.R. 261.24(a) and Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B) are applicable for determining if a solid waste is characterized as toxic. The determination is based on the TCLP; if the contaminant concentrations in the solid waste TCLP extract exceed the TCLP limits, the waste is determined to be a characteristic RCRA hazardous waste (see Section B1.4.1).

IR Site 73 falls within the boundaries of a known prehistoric archeological site, CA-ORA-322/1,118. A determination was made that it is eligible for inclusion in the National Register of Historic Places (Ogden 1997). The California State Historic Preservation Office concurred with this conclusion in 1999 (Abeyta, pers. com. 1999). Accordingly, the substantive portions of the NHPA have been identified as potentially applicable.

Previous studies have estimated that CA-ORA-322/1,118 was occupied 4,000 years ago. A great deal of intrasite variability was observed from samples, though they were not large enough to determine whether the variability stemmed from different activities within a single occupation or

separate occupations over a long period of time. When sampling was conducted within IR Site 73, shell, probably from a midden deposit, was noted in several auger sites. The bulk of shell observed within IR Site 73 is pecten and chione, though other species were occasionally noted. For this reason, the substantive requirements of the Archaeological and Historic Preservation Act and the Archaeological Resources Protection Act have been identified as potentially applicable ARARs for the proposed removal action alternatives in this EE/CA.

Actions impacting birds or mammals are regulated in Cal. Fish & Game Code § 3005(a). These requirements prohibit the taking of birds and mammals, including the taking by poison. Though it is not anticipated that birds or mammals will be taken during removal activities at IR Site 73, the substantive provisions pertaining to the take of birds or mammals with a poisonous substance are potentially relevant and appropriate location-specific ARARs and potentially applicable action-specific ARARs.

In cases where on-site hazardous waste is generated, there is a potential for excavated soils to be classified as RCRA hazardous waste due to localized concentrations of lead. The determination of whether the wastes generated during removal activities are hazardous will be made at the time the wastes are generated. The requirements for determining whether the waste is a hazardous waste are found under Cal. Code Regs. tit. 22, § 66262.10(a) and 66262.11, and the requirements for analyzing the waste to determine whether the waste is hazardous are found under Cal. Code Regs. tit. 22, § 66264.13(a) and (b).

For any operations where hazardous waste is generated, on-site hazardous waste accumulation is allowed under Cal. Code Regs. tit. 22, § 66262.34 for up to 90 days as long as the waste is stored in containers or tanks, on drip pads, inside buildings, is labeled and dated, etc.

Drip pad design, construction, monitoring, and closure requirements found in Cal. Code Regs. tit. 22, § 66265.443, 66265.444, and 66265.445 allow generators to accumulate waste on-site for characterization and staging prior to off-site disposal for up to 90 days.

SCAQMD Rule 403 applies to any source of dust or fumes, including lead-contaminated soil. The rule states activities shall not cause or allow emissions of fugitive dust such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow levels of particulate matter less than 10 micrometers in diameter to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples. This rule is potentially applicable to removal activities at the site.

Section B6 REFERENCES

- Abeyta, D. 1999. Letter from acting state historic preservation officer, State Historic Preservation Office, to D. Baille, Environmental Director, Department of the Navy re: Landscaping of Quarters A, Naval Weapons Station, Seal Beach, Orange County, California. 18 November.
- California State Water Resources Control Board. 2000. Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Phase 1 of the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan).
- CH2M Hill. 2000. Focused Site Inspection Phase II Report, Naval Weapons Station, Seal Beach, California. Draft. Volumes 1 and 2. 18 December.
- Ogden. *See* Ogden Environmental and Energy Services Company, Inc.
- Ogden Environmental and Energy Services Company, Inc. 1997. Historic Properties Overview and Evaluations on the Naval Weapons Station, Seal Beach. Prepared for SWDIV. March.
- SWRCB. *See* California State Water Resources Control Board.
- United States Environmental Protection Agency. 1988a. CERCLA Compliance With Other Laws Manual, Draft Guidance. EPA/540/G-89/006, Office of Emergency and Remedial Response, Washington, DC. August.
- . 1988b. Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA. OSWER Directive 9355.3-01, -02. EPA/540/G-89/004. October.
- . 1991a. Management of Investigation-Derived Wastes During Site Inspections. EPA/540/G-91/009. May.
- . 1991b. ARARs Q's and A's: General Policy, RCRA, CWA, SDWA, Post-ROD Information, and Contingent Waivers. OSWER Directive No. 9234.2-01/FS-A, Washington, DC. June.
- U.S. EPA. *See* United States Environmental Protection Agency.

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ATTACHMENT A

ARARs CORRESPONDENCE

**The Department of the Navy Letter to
Department of Toxic Substances Control**

20 June 2001



DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO CA 92132-5190

CTO-151/0284
File: 02185, 0334

5090
Ser 5NEN SL/562
June 20, 2001

Ms Katherine Leibel
Office of Military Facilities
Department of Toxic Substances Control
Region 4
5796 Corporate Ave
Cypress, CA 90630

Dear Ms. Leibel:

Pursuant to accomplishing the goals of Naval Weapons Station Seal Beach Installation Restoration (IR) program outlined for fiscal year 2001, we are hereby requesting, that the Department of Toxic Substances Control (DTSC), as the lead agency for the State of California, identify potential State chemical-specific, location-specific and action specific "Applicable" or "Relevant and Appropriate" Requirements (ARARs) for a proposed Non-Time Critical Removal Action at Sites 73 (Water Tower Area) and SWMU 24 (Stationary Demilitarization furnace).

To expedite the removal process, the Department of the Navy (DoN) is requesting action specific ARARs along with the chemical-specific and location-specific ARARs. The attached enclosure (1) is a summary of Background Information for Non-Time-Critical Removal Action at Sites 73 and SWMU 24 for Naval Weapons Station Seal Beach to help you with this effort.

In addition, the DoN is requesting that the State of California identify any other criteria, advisories, guidance, and proposed standards that the State requests be considered for the above-identified IR sites. Please coordinate responses from all California state agencies

The Department of the Navy is requesting timely identification of potential State ARARs consistent with Section 121 (d) (2) (A) of CERCLA and the National Contingency Plan 40 CFR SS300.400 (g) and 300.515(d) &(h). Experience to date around the country has shown that a failure to identify ARARs with sufficient precision, early in the process, can cause severe disruptions in timely implementation of removal actions. To ensure timely and complete ARARs identification, for the IR Sites listed above, please include the following information:

1. A specific citation to the statutory or regulatory provision(s) for the potential State ARAR and the date of enactment or promulgation.
2. A brief description of why the potential State ARAR is applicable or relevant and appropriate to the particular IR Site.

5090
Ser 5NEN SL/562
June 20, 2001

3. A description of how the potential State ARAR would apply to potential remedial action, including: specific numeric discharge, effluent, or emission limitations; hazardous substance/constituent action or cleanup levels; etc., if the State intends to take the position that the potential State ARAR includes such limitations, levels, etc.

4. If the State believes its proposed ARAR is more stringent than the corresponding Federal ARAR, please provide the rationale and technical justification for this position.

5. If the State determines that there is not enough information to fully respond to our request, please identify any additional information that would be required to support identification of State ARARs and their application.

Consistent with 40 CFR S300.515 (h) (2), we are requesting that you send a response via first class mail addressed to me and postmarked within thirty (30) calendar days of receipt of this request. Please direct any technical questions that you may have concerning this request to Mr. Si Le at (619) 532-1235 and any legal questions to Mr. Perry Sobel, Associate Counsel (Environmental), at (619) 532-2312.

Sincerely,



M. GOOD

By direction of the Commander

Enclosure (1): Summary of Background Information For Non-Time-Critical Removal
Action At IR Site 73 And SWMU 24

5090
Ser 5NEN.SL/562
June 20, 2001

Copy to:
Ms. Patricia Hannon
California Regional Water Quality Control Board
Santa Ana Region
3737 Main Street, Suite 500
Riverside, CA 92501

Mr. John Bradley
Seal Beach National Wildlife Refuge
P.O. Box 815
Seal Beach, CA 90740

Commanding Officer (Code 045)
Attn: Ms. Pei-Fen Tomashiro
Naval Weapons Station, Seal Beach, Bldg 110
800 Seal Beach Boulevard
Seal Beach, CA 90740-5000

Mr. Robert Schilling
Naval Weapons Station Seal Beach
Bechtel Field Office (trailer southeast of Bldg 112)
800 Seal Beach Blvd.
Seal Beach, CA 90740-5000

Mr. Bryant Wong
CH2M Hill
3 Hutton Centre Drive, Suite 200
Santa Ana, CA 92707

SUMMARY OF BACKGROUND INFORMATION FOR NON-TIME-CRITICAL REMOVAL ACTION AT IR SITE 73 AND SWMU 24 NAVAL WEAPONS STATION SEAL BEACH

The following information is provided to assist the Navy and state regulatory agencies in early identification of chemical-, location-, and action-specific applicable or relevant and appropriate requirements (ARARs) to support the engineering evaluation/cost analyses (EE/CAs) for soil at Installation Restoration (IR) Program Site 73 and Solid Waste Management Unit (SWMU) 24, Naval Weapons Station (NAVWPNSTA) Seal Beach.

As part of the EE/CAs for these sites, potential non-time-critical removal actions will be evaluated with consideration given to the nine criteria stipulated in the National Oil and Hazardous Substances Pollution Contingency Plan: overall protection of human health and the environment; compliance with ARARs; long-term effectiveness; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; cost; state acceptance; and community acceptance.

NAVWPNSTA Seal Beach, located about 30 miles south of the Los Angeles urban center, consists of about 5,000 acres of land located on the Pacific Coast. NAVWPNSTA Seal Beach is part of the Commander Navy Region Southwest, and its major claimant is the Commander-In-Chief Pacific Fleet. The Station provides fleet combatants with ready-for-use ordnance. Because of its geographic location, the Station serves as a supply point for the operating Navy and Marine Corps forces in the southern California region.

IR Site 73 – Water Tower

IR Site 73 is the area under and surrounding the Station water tower. Since its construction around 1944, the water tower has been periodically painted and sandblasted an unknown number of times. The most recent painting took place around 1994. Previous painting activities resulted in a release of sandblast paint chips to the area surrounding the water tower.

As shown on the Site Location Map and IR Site 73 Base Map below, the site is located east of Seal Beach Boulevard, south of the Main Gate, and southwest of Building 206. The site falls within a known archeological site, CA-ORA-322/1,118; and, in 1997, an archaeological investigation documented by Ogden reconfirmed the significance of the site's cultural resources.

RISK SCREENING RESULTS FOR IR SITE 73

The chemicals of potential concern (COPCs) at IR Site 73 are metals and semi-volatile organic compounds (SVOCs). Human health risk screening for soils at IR Site 73 was performed as part of a Focused Site Inspection (FSI). The screening compared the soil analytical data with stationwide upper limit background values (ULBVs) and residential preliminary remediation goals (PRGs), and estimated the excess lifetime cancer risk (ELCR) and non-cancer hazard quotient (HQ) for each COPC. The 95 percent upper confidence limit (UCL) concentration of metals in soil at the site yielded an ELCR of 2×10^{-9} and a non-cancer hazard index (HI) of 0.7. The ELCR associated with the SVOCs in soil is 1×10^{-5} , primarily as a result of polynuclear aromatic hydrocarbon (PAH) benzo(a)pyrene. The non-cancer HI is less than 0.1 for SVOCs at IR Site 73.

Based on the ecological risk screening performed as part of the FSI, ecologically significant risks to terrestrial receptors exist from metals in soil. Safe ecological PRGs for most receptors are exceeded by the 95 percent UCL concentrations of lead. The maximum concentrations of metals in soils, primarily lead, exceed the lowest safe PRGs for the receptors selected at the site. Lead is the primary contributor to ecological risks at the site.

Most of the PAH compounds (except the most volatile) were detected in soil at IR Site 73. However, maximum concentration of anthracene, benzo(a)pyrene, and dibenzo(a,h)anthracene did not exceed safe ecological PRGs for any receptor. Therefore, PAHs do not contribute to the risks to ecological receptors at IR Site 73.

POTENTIAL REMOVAL ACTION ALTERNATIVES FOR IR SITE 73

Removal action alternatives being considered for evaluation in the IR Site 73 EE/CA range from no action, partial removal of impacted soil, to complete removal of impacted soil. Soil removal would be followed by disposal.

Depending on the removal action goals developed during the EE/CA, the area of impacted soil subject to removal action may range from approximately 600 square yards to in excess of 5,000 square yards. The depth of the removal area is expected to range from 1 to 3 feet. Therefore, the volume of impacted soil subject to a removal action could range from 200 to 5,000 cubic yards. Since IR Site 73 is known to contain cultural resources, the volume of soil subject to removal action and/or disturbance will be limited to the maximum extent practicable.

SWMU 24 – Stationary Demilitarization Furnace

Prior to its decommissioning in 1998, SWMU 24 housed the stationary demilitarization furnace facility (SDFF). The SDFF was used primarily from 1985 to 1994 for the removal of explosive residue from expended munitions. When it was decommissioned in 1998, the structures were demolished and removed; and the areas known to contain residual quantities of hazardous materials were decontaminated. After the demolition of the SDFF, the area was graded.

SWMU 24 is located in the center of the Station south of Westminster Street, bounded by Building 95 to the west and agricultural fields to the east and south, as shown in the Site Location Map and SWMU 24 Base Map below.

RISK SCREENING RESULTS FOR SWMU 24

The COPCs at SWMU 24 are metals. Human health risk screening for soils at SWMU 24 was performed as part of an FSI. The screening compared the soil analytical data with stationwide ULBVs and residential PRGs, and estimated the ELCR and HQ for each COPC. The total ELCR for metals in soil, based on 95 percent UCL concentrations, is 1×10^{-8} . The HI for metals at the site is 1.0. Therefore, there are no significant human-health risks from metals at the site.

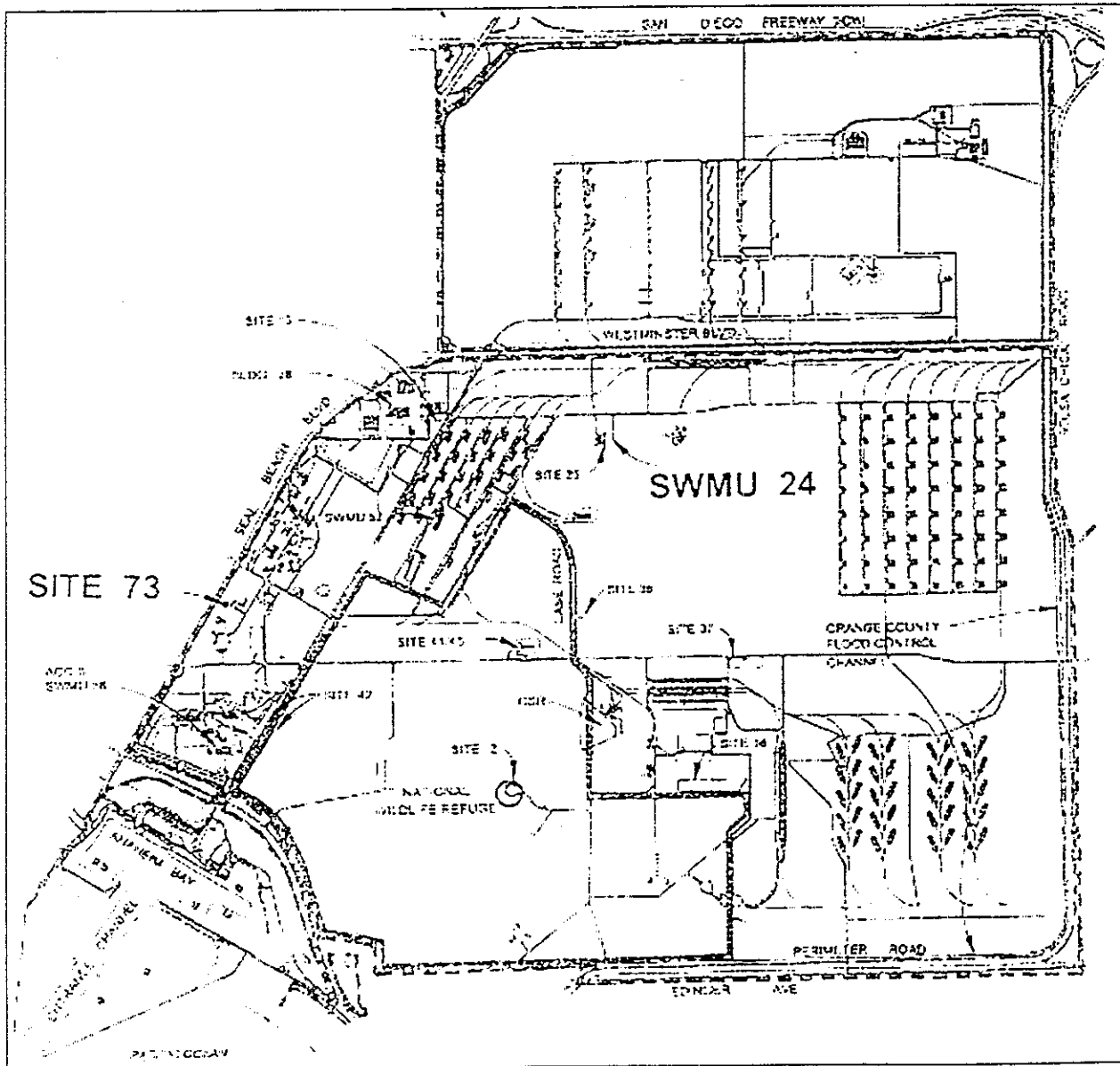
Based on the ecological risk screening performed as part of the FSI, there are significant risks to terrestrial receptors from metals in soil. Safe ecological PRGs for most receptors are exceeded by the arithmetic mean concentrations of lead. The maximum

concentrations of metals in soils, primarily lead and copper, exceed the lowest safe PRG for the receptors selected at the site. These metal exceedances occurred predominantly within two localized areas.

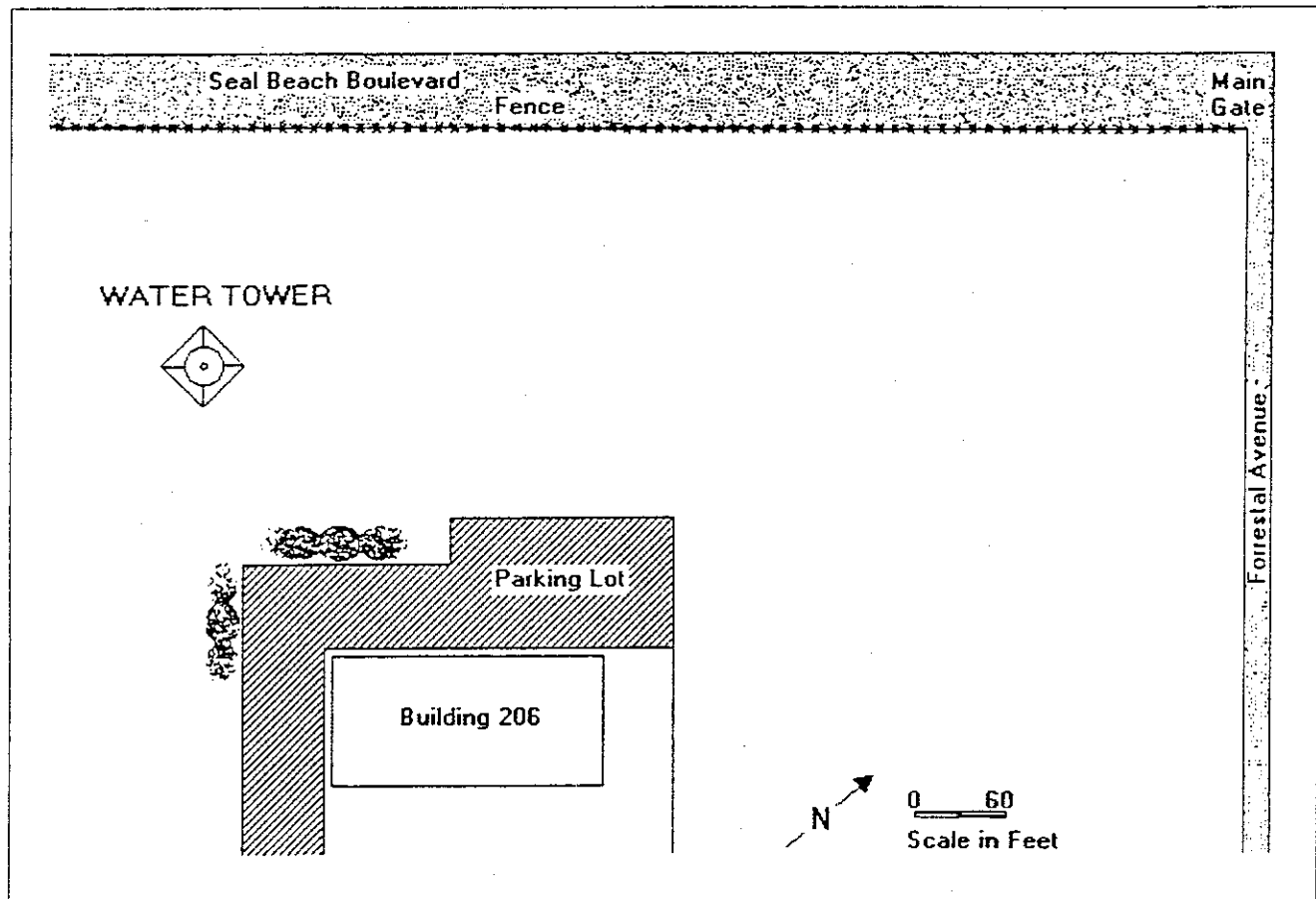
POTENTIAL REMOVAL ACTION ALTERNATIVES FOR SWMU 24

Removal action alternatives being considered for evaluation in the SWMU 24 EE/CA range from no action, partial removal of impacted soil, to complete removal of impacted soil. Soil removal would be followed by disposal. Another possible removal action alternative for this site is consolidation. Under consolidation, the surface area of impacted soil at the site would be reduced by up to a third of the original surface area. Placement of a cover may also be considered.

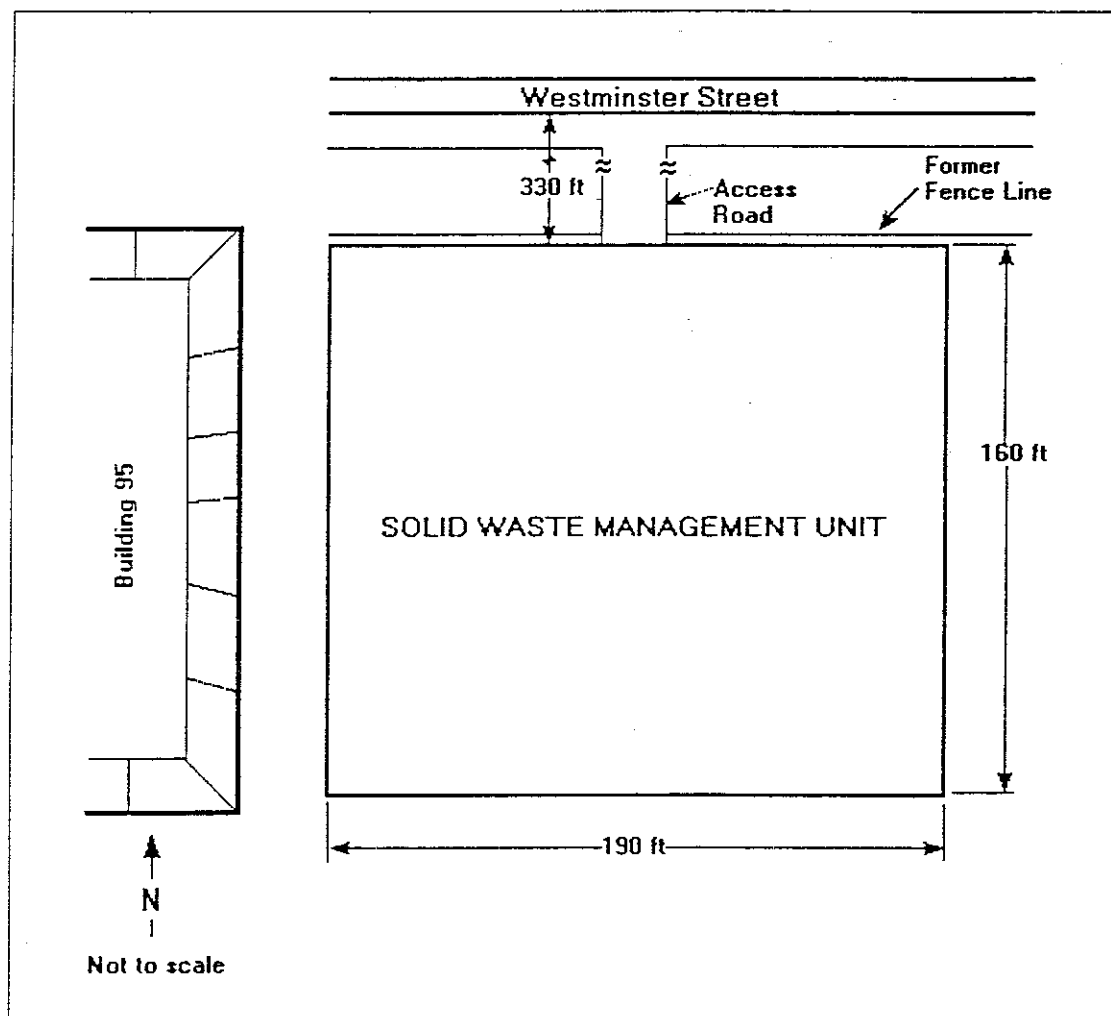
For SWMU 24, the area of impacted soil subject to a removal action could range from approximately 200 square yards to nearly 1,500 square yards, depending on the removal action goals developed during the EE/CA. With the exception of one soil sample collected from 2 to 2.5 feet below ground surface, the majority of lead concentrations significantly above the stationwide ULBV lead concentration was reported in surface soil samples only. Therefore, the depth of the removal area is expected to be approximately 1 foot below ground surface resulting in an estimated soil volume of 70 to 500 cubic yards.



Site Location Map



IR Site 73 Base Map



SWMU 24 Base Map

**Department of Toxic Substances Control
Letter to the Department of the Navy**

08 August 2001



Department of Toxic Substances Control



Winston H. Hickox
Agency Secretary
California Environmental
Protection Agency

Edwin F. Lowry, Director
5796 Corporate Avenue
Cypress, California 90630

Gray Davis
Governor

CTO-151/6296
File: 02184, 0222

August 8, 2001

Mr. Mark Good
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Coast Highway
San Diego, California 92132-5190

RESPONSE TO REQUEST FOR IDENTIFICATION OF APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs): PROPOSED NON-TIME CRITICAL REMOVAL ACTION AT INSTALLATION RESTORATION (IR) PROGRAM SITE 73, (WATER TOWER AREA) AND SWMU 24 (STATIONARY DEMILITARIZATION FURNACE) NAVAL WEAPONS STATION (NWS), SEAL BEACH.

Dear Mr. Good:

The California Department of Toxic Substances Control (DTSC) received your letter dated June 20, 2001 requesting state action-specific, chemical specific and location specific ARARs for IR Site 73 (Water Tower Area) and SWMU 24 (Stationary Demilitarization Furnace). According to Federal Facility Site Remediation Agreement (FFSRA) section 7.7 (c), the Navy is required to contact the agencies that failed to respond and again solicit their inputs. Please note that ARARs analysis is an iterative process. At the time of developing Remedial Action Plan (RAP)/ Removal Action Work plan (RAW), additional ARARs may be apparent.

In response to your request, we solicited action-specific, chemical specific and location specific ARARs from the following state and local agencies:

California Department of Health Services;
California Coastal Commission;
California Integrated Waste Management Board;
California Regional Water Quality Control Board, Santa Ana Region;
California Department of Fish and Game;
Orange County Public Facilities & Resources Department.(Environmental Management Agency);

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web-site at www.dtsc.ca.gov

Mr. Mark Good
August 8, 2001
Page 2

California Department of Transportation (District 12);
South Coast Air Quality Management District;
California Air Resources Board;
California State Lands Commission;
Orange County Sanitation District;
Orange County Water District;
Orange County Health Care Agency;
City of Seal Beach Environmental Quality Control Board; and
City of Seal Beach Planning Department.

We received responses from California Air Resources Board, California Department of Transportation, California Integrated Waste Management Board, California Department of Fish and Game, County of Orange Public Facilities & Resources Department and City of Seal Beach Environmental Quality Board. The responses are enclosed as Attachment A.

If you have any questions, please call me at (714) 484-5446.

Sincerely,



Katherine K. Leibel
Remedial Project Manager
Federal Facilities Unit "B"
Southern California Branch
Office of Military Facilities

Enclosure

cc: Ms. Pei-Fen Tamashiro, Environmental Engineer
Naval Weapons Station, Seal Beach
Public Works Code 099
800 Seal Beach Boulevard
Seal Beach, California 90740-5000

Mr. Si Le
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Coast Highway
San Diego, California 92132-5190

Mr. Mark Good
August 8, 2001
Page 3

cc: Mr. Patricia Hannon (without Enclosure)
California Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, California 92501-3339

Ms. Lindi Wilhite (without Enclosure)
17340 Santa Maria Street
Fountain Valley, California 92708

ATTACHMENT A

**Department of Transportation Letter to
Department of Toxic Substances Control**

31 July 2001

DEPARTMENT OF TRANSPORTATION

DISTRICT 12
3337 MICHELSON DRIVE, SUITE CN380
IRVINE, CA 92612-1699



July 31, 2001

FAX and SEND

Katherine K. Leibel, Remedial Project Manager
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, CA 90630

IGR/CEQA
PN
Log # 937
SCH# None

Dear Ms. Leibel:

Subject: Seal Beach Naval Weapons Station ARARS

Thank you for the opportunity to review and comment on the **Public Notice (PN) for the Seal Beach Naval Weapons Station (NWS) Applicable or Relevant and Appropriate Requirements (ARARs) project**. The proposed project is to provide potential state action-specific, chemical-specific and locations-specific ARARs for IR site 73 and SWMU 24 at the NWS, Seal Beach.

Caltrans District 12 is a reviewing agency and has the following comment:

- If soil is to be excavated and taken off-site for disposal, measure must be taken to avoid tracking of materials, which may fall or blow onto Caltrans Right-of-way and measures must be taken to contain vehicle loads on State Right-of-way.

Please continue to keep us informed of projects that may potentially impact our State Transportation Facilities. If you have any questions, or need assistance please contact Lynne Gear at (949) 724-2241.

Sincerely,

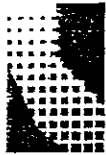
A handwritten signature in cursive script, reading 'Robert F. Joseph'.

Robert F. Joseph, Chief
Advance Planning Branch

Cc: Ron Helgeson, HDQTRS
Terry Roberts, OPR
Leslie Manderscheid, Environmental Planning

**California Integrated Waste Management
Board Letter to Department of Toxic
Substances Control**

26 July 2001



California Integrated Waste Management Board

Linda Moulton-Patterson, Chair

1001 I Street • Sacramento, California 95814 • (916) 341-6000

Mailing Address: P. O. Box 4025, Sacramento, CA 95812-4025

www.ciwmb.ca.gov



Gray Davis
Governor

Winston H. Hickox
Secretary for
Environmental
Protection

July 26, 2001

Ms. Katherine K. Leibel
Federal Facilities Unit "B"
Southern California Operations
Office of Military Facilities
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

REQUEST FOR IDENTIFICATION OF ARARS FOR SITE 73 AND SWMU 24, SEAL BEACH NAVAL WEAPONS CENTER, SEAL BEACH, ORANGE COUNTY

Dear Ms. Leibel:

California Integrated Waste Management Board (Board) Closure and Technical Services Section staff have reviewed your July 2, 2001, request for applicable or relevant and appropriate requirements (ARARs) for the proposed non-time critical removal action at Installation Restoration (IR) Program Site 73 (Water Tower Area) and SWMU 24 (Stationary Demilitarization Furnace) at Seal Beach Naval Weapons Center, Orange County.

Based on Board staff review of the accompanying material to your request letter, staff has concluded that the Water Tower Area (Site 73) and the Stationary Demilitarization Furnace (SWMU 24) are not solid waste disposal sites as defined in the Public Resources Code. Therefore, the Board will not be providing ARARs for these sites.

Thank you for the opportunity to review the proposed project. For future correspondence with the Board, please note our new address above.

Should you have any questions or comments concerning the above matter, please contact Christopher Fong of my staff or me at (916) 341-6352 or (916) 341-6318, respectively.

Sincerely,

Michael B. Wochnick, Manager
Closure and Technical Services

cc: Ms. Patty Henshaw, Orange County Solid Waste Local Enforcement Agency
Ms. Patricia Hannon, Santa Ana Regional Water Quality Control Board

California Environmental Protection Agency

Printed on Recycled Paper

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our Web site at <http://www.ciwmb.ca.gov/>.

**California Air Resources Board Letter to
Department of Toxic Substances Control**

23 July 2001



Winston H. Hickox
Agency Secretary

Air Resources Board

Alan C. Lloyd, Ph.D.
Chairman

1001 I Street • P O. Box 2815 • Sacramento, California 95812 • www.arb.ca.gov



Gray Davis
Governor

MEMORANDUM

TO: Katherine Leibel
Remedial Project Manager
Federal Facilities Unit "B"
Southern California Operations
Office of Military Facilities
Department of Toxic Substances Control
5796 Corporate Avenue
Cypress, California 90630

FROM: Lynton Baker *Lynton Baker*
Staff Air Pollution Specialist
Substance Evaluation Section
Stationary Source Division

DATE: July 23, 2001

SUBJECT: APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS
FOR INSTALLATION RESTORATION SITE 73 (WATER TOWER AREA)
AND SOLID WASTE MANAGEMENT UNIT 24 (STATIONARY
DEMILITARIZATION FURNACE) - SEAL BEACH NAVAL WEAPONS
STATION

This memorandum is in response to your request for potential California "Applicable or Relevant and Appropriate Requirements" (ARARs) for Installation Restoration Site 73 (Water Tower Area) and Solid Waste Management Unit 24 (Stationary Demilitarization Furnace) at the Seal Beach Naval Weapons Station. State law as codified in Health and Safety Code (Division 26, section 40000) provides to local and regional authorities the primary responsibility for control of air pollution from sources other than emissions from motor vehicles. Air pollution control districts and air quality management districts are required to adopt and enforce rules and regulations to achieve and maintain the state and federal ambient air quality standards in all areas affected by emission sources under their jurisdiction, and to enforce all applicable provisions of state and federal law (Health and Safety Code section 40001).

Rules and regulations of the South Coast Air Quality Management District (SCAQMD) should be included in the consideration of action specific ARARs for these sites. If you have not contacted the SCAQMD, we recommend that you contact Mr. Larry Bowen,

Katherine Leibel
July 23, 2001
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Manager of the Toxics Section, at (909) 396-2575. SCAQMD rules that may apply include:

- 201 Permit to Construct
- 203 Permit to Operate
- 402 Nuisance
- 403 Fugitive Dust
- 1401 New Source Review of Carcinogenic Air Contaminants

In addition, the California Ambient Air Quality Standards (CAAQS, list enclosed) may apply as chemical specific ARARs. This is to ensure that activities undertaken to remediate these sites do not cause ambient air concentrations above the health protection levels of the CAAQS. If soil removal is necessary, the CAAQS for particulate matter (PM10) and lead should be considered.

If you have questions, please call me at (916) 324-6997.

Enclosure

cc: Mr. Larry Bowen (w/o Enclosure)
Manager, Toxics Section
South Coast Air Quality Management District
21865 E. Copley Dr.
Diamond Bar, CA 91765

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ¹		Federal Standards ²		
		Concentration ³	Method ⁴	Primary ^{3,5}	Secondary ^{3,5}	Method ⁷
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	Ultraviolet Photometry	0.12 ppm (235 µg/m ³) ⁶	Same as Primary Standard	Ethylene Chemiluminescence
	8 Hour	—		0.08 ppm (157 µg/m ³)		
Respirable Particulate Matter (PM ₁₀)	Annual Geometric Mean	30 µg/m ³	Size Selective Inlet Sampler ARB Method P (8/22/85)	—	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	24 Hour	50 µg/m ³		150 µg/m ³		
	Annual Arithmetic Mean	—		50 µg/m ³		
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard		65 µg/m ³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean			15 µg/m ³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	Non-dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m ³)	None	Non-dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m ³)		35 ppm (40 mg/m ³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m ³)		—		
Nitrogen Dioxide (NO ₂)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m ³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m ³)		—		
Lead	30 days average	1.5 µg/m ³	AIHL Method 54 (12/74) Atomic Absorption	—	—	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µg/m ³	Same as Primary Standard	
Sulfur Dioxide (SO ₂)	Annual Arithmetic Mean	—	Fluorescence	0.030 ppm (80 µg/m ³)	—	Pararosaniline
	24 Hour	0.04 ppm (105 µg/m ³)		0.14 ppm (365 µg/m ³)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m ³)	
	1 Hour	0.25 ppm (655 µg/m ³)		—	—	
Visibility Reducing Particles	8 Hour (10 am to 6 pm, PST)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer—visibility of ten miles or more (0.07—30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: ARB Method V (8/18/89).		No Federal Standards		
Sulfates	24 Hour	25 µg/m ³	Turbidimetric Barium Sulfate-AIHL Method 61 (2/76)			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)	Cadmium Hydroxide STRactan			

See footnotes on next page.....

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM₁₀, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM₁₀, the 24 hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. For PM_{2.5}, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 mm of mercury. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 mm of mercury (1,013.2 millibar); ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997. The federal 1-hour ozone standard continues to apply in areas that violated the standard. Contact U.S. EPA for further clarification and current federal policies.

**County of Orange, Public Facilities and
Resources Department Letter to Department of
Toxic Substances Control**

19 July 2001



COUNTY OF ORANGE
PUBLIC FACILITIES & RESOURCES DEPARTMENT

Vicki L. Wilson, Director

Environmental Resources
1750 S. Douglass Road
Anaheim, CA 92806

Telephone: (714) 567-6363
Fax: (714) 567-6220

July 19, 2001

Ms. Katherine Leibel
Department of Toxic Substances Control
Federal Facilities Unit "B"
Southern California Operations
Office of Military Facilities
5796 Corporate Avenue
Cypress, CA 90630

Subject: Applicable or Relevant and Appropriate Requirements (ARARs) for Non-time-critical Removal Action at Installation Restoration (IR) Site 73 and Solid Waste Management Unit (SWMU) 24, Naval Weapons Station (NWS), Seal Beach, California

Dear Ms. Leibel:

In response to your letter dated July 2, 2001, this department has reviewed the summary background information for subject project and has no comments.

Thank you for the opportunity to comment on ARARs for the Seal Beach NWS non-time critical removal project. Please direct any questions regarding this letter to Duc Nguyen at (714) 567-6339.

Very truly yours,

A handwritten signature in dark ink, appearing to read "Chris Crompton", is written over a horizontal line.

Chris Crompton
Manager, Environmental Resources

CC: dn\ID:\users\Nguyend\Rev\ARAR\Seal Beach NWS ARAR 0107 site 73 24

**City of Seal Beach Letter to Department of
Toxic Substances Control**

25 July 2001

City of Seal Beach



CITY HALL - 211 EIGHTH STREET
SEAL BEACH, CALIFORNIA 90740-6377
(562) 431-2527

July 25, 2001

Department of Toxic Substances Control
Attn: Katherine K. Leibel
Remedial Project Manager
Federal Facilities Unit "B"
Southern California Operations
Office of Military Facilities
5796 Corporate Avenue
Cypress, CA 90630

Dear Ms. Leibel:

SUBJECT: *"Request for Applicable or Relevant and Appropriate Requirements"* (ARARs) for Naval Weapons Station (WPNSTA), Seal Beach, Site 73 and SWMU 24

The City of Seal Beach has reviewed your request of July 2, 2001 relative to *"Request for Applicable or Relevant and Appropriate Requirements"* (ARARs) for Naval Weapons Station (WPNSTA), Seal Beach, Site 73 and SWMU 24. Upon a review of your letter and the information provided in Attachments A and B, the City of Seal Beach has no input on potential ARARs regarding chemical-specific ARARs. The City does have a *"relevant and appropriate requirement"* in relation to Site 73 and SWMU 24. The City requests that all requirements of South Coast Air Quality Management District Rule 402, Nuisances, and Rule 403, Fugitive Dust, be incorporated into the remediation program for this site, due to the close distance to existing residential areas and the nature of the proposed soil removal activities.

The City of Seal Beach further requests that an *"Archaeological Resources Protection Plan for Installation Restoration Site 73"*, be required to be prepared to assure compliance with the provisions of Section 106 of the National Historic Preservation Act to address potential impacts to the significant archaeological site CA-ORA-322/1,118. I am enclosing a copy of monitoring and worker training activities that should be included, depending on the recommendation of the final *"Archaeological Resources Protection Plan"*, with the final conditions of approval for the subject removal action. The enclosed materials are from a previous document prepared by the Department of Navy, the *"Archaeological Resources*

City of Seal Beach EQCB Comment Letter re:
"Request for Applicable or Relevant and Appropriate
Requirements" (ARARs) for Site 73 and SWMU 24
Naval Weapons Station, Seal Beach
July 25, 2001

Protection Plan for Installation Restoration Sites 5, 8, 12, 16, 21, 40, 44, and 46 at Naval Weapons Station, Seal Beach, Orange County, California", dated March 1995.

The City requests, in light of the existing agreements between the Navy and the State of California which require the Installation Restoration Program to comply with State requirements and regulations, that all project activities would be determined a project pursuant to California Public Resources Code Section 21065, and therefor would require an environmental analysis to be performed in accordance with the provisions of the California Environmental Quality Act, Section 21000 et. seq., and the "Guidelines for the Implementation of the California Environmental Quality Act with Discussions", prepared by the Governors Office of Planning and Research.

Thank you for allowing us to comment on the proposed ARARs for Naval Weapons Station, Seal Beach, Site 73 and SWMU 24. If you have any questions or require further information, please contact Mr. Lee Whittenberg, Director of Development Services Department, (562) 431-2527, extension 313, at your earliest convenience. He will be able to respond to any additional questions that you may have regarding this matter.

Sincerely,



Joseph E. Porter, III
Chairperson, Environmental Quality Control Board

Enclosure: "Archaeological Resources Protection Plan for Installation Restoration Sites 5, 8, 12, 16, 21, 40, 44, and 46 at Naval Weapons Station, Seal Beach, Orange County, California", dated March 1995: Section 6 - Archaeological Resources Protection; and Appendix A - Sample Worker Instructional Presentation

Distribution: City Council
Archaeological Advisory Committee
Environmental Quality Control Board

City Manager
Director of Development Services Department

**Department of Fish and Game Letter to
Department of Toxic Substances Control**

03 August 2001

Ms. Katherine Leibel

August 3, 2001

Page 1

Ms. Katherine Leibel

August 3, 2001

Office of Military Facilities

Department of Toxic Substances Control

5796 Corporate Avenue

Cypress, California 90630

**Applicable or Relevant and Appropriate Requirements (ARARs) for Seal Beach
Naval Weapons Stations (NWS), California, Site 73 and SWMU 24**

This memorandum is in response to your July 2, 2001, letter requesting potential State ARARs for Site 73 (water tower area) and SWMU 24 (stationary demilitarization furnace) at Seal Beach NWS. The Department of Fish and Game (DFG) appreciates this opportunity to provide State laws and regulations to guide the planned cleanup at Seal Beach NWS.

It is our understanding, that you are making the request for ARARs, as the State lead agency for toxic cleanup, for purposes of ensuring a coordinated cleanup effort. The request for DFG to define appropriate State cleanup requirements is made pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as a portion of the remedial investigation/feasibility study process. This letter will serve to advise you of the Department's continuing interest in coordinating any natural resource issues, as the designated natural resource trustee for the State of California. This may be necessary should release(s) of any hazardous materials at the subject site affect State natural resources.

I had one site-visit of Site 73 and SWMU 24 on July 26, 2001. They are terrestrial habitats approximately 3500 feet from the National Wildlife Refuge which is a aquatic habitat. Listed on the enclosed table is a site-specific list of Fish and Game Code Sections which appear to apply as State ARARs or TBCs (to be considered) with the date of enactment or promulgation. The specific citation and explanation for each listed ARAR and TBC are also attached, in addition to applicable statutes and regulations.

We highly recommend that biological characterization be conducted at Site 73 and SWMU 24 in the site inspection process. Following our review of the biological

Ms. Katherine Leibel
August 3, 2001
Page 2

characterization, we may suggest refinement of the attached list of ARARs depending on the existence of species or conditions which warrant additional protection under California law.

The DFG appreciates the opportunity to provide our ARARs. If you have any questions or need further information, please contact me at (916) 324-9805 or by e-mail at chuang@ospr.dfg.ca.gov.

Sincerely,

Charlie Huang, Ph.D.
Associate Toxicologist
Scientific Branch
Office of Spill Prevention and Response

Reviewer Ms. Regina Donohoe, Ph.D.
Staff Toxicologist

Ms. Wendy Johnson
Staff Counsel

cc: Mr. James Polisini, Ph.D.
Department of Toxic Substances Control
Glendale, California

Ms. Pei-Fen Tamashiro
Naval Weapons Station, Seal Beach
Seal Beach, California

Department of Fish and Game
Office of Spill Prevention and Response
Sacramento, California

Mr. Al Petrovich, CDFG/OSPR-Scientific
Ms. Julie Yamamoto, CDFG/OSPR-Scientific
Mr. Eugene Toffoli, CDFG/OSPR-Legal
Ms. Wendy Johnson, CDFG/OSPR-Legal

Ms. Katherine Leibel
August 3, 2001
Page 3

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CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
 For Site 73 and SWMU 24

LOCATION	STANDARD	SPECIFIC CITATION	ARAR/TBC EXPLANATION
California fish and wildlife resources	The Department of Fish and Game holds natural resources in public trust for the State of California	Fish and Game Code section 711.7 (Added by Stats 1990, c. 1706 (A.B. 3158), section 5).	This Code section designates the Department of Fish and Game as the trustee agency over California's fish and wildlife resources. It also concerns the payment of state filing and permit fees by person engaging in projects or activities under federal licenses, contract or permit. <i>California Public Resources Code section 10005 and section 21089</i> . This section expresses administrative policy and does not necessarily impose a substantive requirement in this situation. This section should be considered to the extent that DFG is the trustee agency over California's fish and wildlife resources.
Wildlife Species	Action must be taken to prohibit the taking of birds and mammals, including the taking by poison	Fish and Game Code section 3005 (Stats 1957, c. 456, p. 1353 section 3005)	This code section prohibits the taking of birds and mammals, including taking by poison. "Take" is defined by Fish and Game Code section 86 to include killing. "Poison" is not defined in the code. Although there is no state authority on this point, federal law recognizes that poison, such as Strychnine, may effect incidental taking (<i>Defenders of Wildlife v. Administrator Environmental Protection Agency</i> (1989) 882 F. 2d 1295). This code section imposes a substantive, promulgated environmental protection requirement.
Aquatic and wildlife species/habitat	Action may be taken to collect damages for the taking of birds, mammals, fish, reptiles or amphibians	Fish and Game Code section 2014 (Stats 1957, c. 456, p. 1342, section 2014)	This section declares that it is the policy of the state to conserve its natural resources. It allows the state to recover damages in a civil action against any person or local agency which unlawfully or negligently takes or destroys any bird, mammal, fish, reptile or amphibian protected by the laws of the state.

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

Rare native plants	Action must be taken to conserve native plants, there can be no releases and/or actions that would have a deleterious effect on species or habitat.	Fish and Game Code section 1900 <i>et seq.</i> (Added by Stats. 1977, c. 1181, p. 3869, section 8)	<p>These code sections make provisions concerning native plants protection, including: criteria for determining endangered plant species; designation of endangered plants by the Fish and Game Commission; research by the Department; takings by the Department for scientific or propagation purposes; other prohibitions on takings; exercise of enforcement authority; arrests and confiscation; carrying out of plant conservation programs by other state departments and agencies; and unauthorized public agency regulations pertaining to agriculture. Sections 1900, 1901, 1904, 1905, 1906, 1907, 1909, 1910, 1911, 1912, and 1913 are procedural or administrative in nature and do not impose any substantive requirements.</p> <p>Section 1908 imposes a substantive requirement by forbidding any "person" to take rare or endangered native plants. Fish and Game Code section 67 provides the definition of "person" as any natural person or any partnership, corporation, limited liability company, trust, or other type of association. Whether the federal government or contractors acting on behalf of the federal government would fall within that definition is a potential issue. To the extent that there are rare or endangered plants on site, section 1908 would be an ARAR.</p>
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CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
 For Site 73 and SWMU 24

Endangered Species/habitat	Criteria to be considered in Standard for Fish and Game Code section 2080	Fish and Game Code section 2050-2068; 2070-2079 (Added by Stats. 1984, c. 1240 section 2)	These code sections comprise Article 1 and Article 2 of chapter 1.5 of California Endangered Species Act. These sections make declarations of policy and provide definitions, and do not impose any substantive requirements. We ask that these sections be considered to the extent that Fish and Game Code section 2080 is an ARAR (as noted below).
Endangered Species	Action must be taken to conserve endangered species, there can be no releases and/or actions that would have a deleterious effect on species or habitat	Fish and Game Code section 2080 (Added by Stats. 1984, c. 1240, section 2)	<p>This section prohibits the take, possession, purchase or sell within the state, any species (including rare native plant species), or any product thereof, that the commission determines to be an endangered or threatened species, or the attempt of any of these acts. This section is applicable and relevant to the extent that there are endangered or threatened species in the area which have the potential of being affected if actions are not taken to conserve the species. This section prohibits releases and/or actions that would have a deleterious effect on species or their habitat. This section and applicable Title 14 regulations should be considered as ARARs</p> <p><i>California Code of Regulations Title 14 sections 670.2 provides a listing the plants of California declared to be Endangered, Threatened or Rare</i></p> <p><i>California Code of Regulations Title 14 section 670.5 provides a listing of Animals of California declared to be endangered or threatened.</i></p> <p><i>California Code of Regulations Title 14 section 783 et seq., provides the implementation regulations for the California Endangered Species Act.</i></p>

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
 For Site 73 and SWMU 24

Fully protected bird species/habitat	Action must be taken to prevent the taking of fully protected birds	Fish and Game Code section 3511 (Added by Stats. 1970, c. 1036, p. 1848 section 4)	<p>This section provides that it is unlawful to take or possess any of the following fully protected birds:</p> <ul style="list-style-type: none"> (a) American peregrine falcon (b) Brown Pelican (c) California black rail (d) California Clapper rail (e) California Condor (f) California least tern (g) Golden eagle (h) Greater sandhill crane (i) Light footed clapper rail (j) Southern bald eagle (k) Trumpeter swan (l) White-tailed kite (m) Yuma clapper rail <p>This should be considered Applicable and Relevant to the extent that such fully protected birds or their habitat are detected on or near the site.</p>
Migratory Non-game Birds	Actions must be taken to prevent the take or possession of any migratory nongame birds	Fish and Game Code section 3513 (Added by Stats. 1957, c. 1972, p. 1377 section 36)	<p>This section prohibits the take or possession of any migratory nongame bird as designated in the Migratory Bird Treaty Act, 16 U.S.C. sections 3371-3378; 50 C.F.R. section 10.13, or any part of such migratory nongame bird, except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act. This section is Applicable and Relevant, unless one of the rules and regulations adopted by the Secretary of the Interior exempt the activity and to the extent that this code section is more stringent than the Migratory Bird Act found at 16 U.S.C. section 3371.</p>

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
 For Site 73 and SWMU 24

Fully Protected Mammals	Actions must be taken to assure that no fully protected mammals are taken or possessed at any time.	Fish and Game Code section 4700 (Added by Stats. 1970, c. 1036, p. 1848 section 6)	<p>This section prohibits the take or possession of any of the fully protected mammals or their parts. The following are fully protected mammals:</p> <ul style="list-style-type: none"> (a) Morro Bay kangaroo rat (b) Bighorn sheep except Nelson bighorn sheep (c) Northern elephant seal (d) Guadalupe fur seal (e) Ring-tailed cat (f) Pacific right whale (g) Salt-marsh harvest mouse (h) Southern sea otter (i) Wolverine <p>This section is applicable, relevant, and appropriate to the extent that such mammals and/or their habitat are located on or near the site.</p>
Birds of Prey	Action must be taken to prevent the take, possession, or destruction of any birds-of-prey or their eggs	Fish and Game Code section 3503.5 (Added by Stats. 1985, c. 1334, section 6)	This section prohibits the take, possession, or destruction of any birds in the orders of Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto. This section will be applicable and relevant to the extent that such species or their eggs are located on or near the site.

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
 For Site 73 and SWMU 24

Nongame birds	Actions must be taken to prevent the take of nongame birds.	Fish and Game Code section 3800 (Added by Stats. 1971, c. 1470, p. 2906, section 13)	This section prohibits the take of nongame birds, except in accordance with regulations of the commission, or when related to mining operations with a mitigation plan approved by the department. This section further provides requirements concerning mitigation plans related to mining. This section is applicable and relevant to the extent that nongame birds or their eggs are located on or near the site and such species have not been included in the fish and wildlife conservation plan filed pursuant to the Federal Fish and Wildlife Conservation Act. Species included in the plan will be protected at the federal standard making this section an ARAR to the extent that it is more stringent than the federal standard of protection.
Nongame mammals	Action must be taken to avoid the take or possession of nongame mammals	Fish and Game Code section 4150 (Added by Stats. 1971, c. 1470, p. 2907, section 21)	Nongame mammals are those occurring naturally in California which are not game mammals, fully protected mammals, or fur-bearing mammals. These mammals, or their parts, may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission.
Nongame Animals	Action must be taken to avoid the take of nongame mammals except as provided in applicable regulations	Title 14 California Code of Regulations (hereinafter referred as C.C.R.) section 472 (effective 07/01/74)	This Regulation provides that nongame birds and mammals may not be taken. a) The following nongame birds and mammals may be taken except as provided in Chapter 6: English Sparrow, starling, coyote, weasels, skunks, opossum, moles and rodents (excludes tree and flying squirrels, and those listed as furbearers, endangered or threatened species); b) Fallow, sambar, sika, and axis deer may be taken concurrently with the general deer season. c) Aoudad, mouflon, tahr, and feral goats may be taken all year. d) American crows may be taken only under provisions of section 485 and by landowners or tenants, or person authorized by landowners or tenants, when American crows are committing or about to commit depredations upon ornamental shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance. If required by Federal regulations, landowners or tenants shall obtain a Federal migratory bird depredation permit before taking any American crows or authorizing any other person to take them.

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

Nongame Birds and NonGame Mammals	Methods of Take	Title 14 C.C.R. section 475 (effective 07/05/72)	This regulation provides that birds and nongame mammals may be taken in any manner except as follows: a). Poison may not be used, b). Recorded or electrically amplified bird or mammal calls or sounds or recorded or electrically amplified imitations of bird or mammal calls or sounds may not be used to take any nongame bird or nongame mammal except coyotes, bobcats, American crows and starlings. The regulation further specifies when take with equipment and ammunition, traps, feed, bait and/or other material capable of attracting nongame mammals may occur.
Tidal Invertebrates	Action must be taken to avoid the take or possession of mollusks, crustaceans, or other invertebrates	Fish and Game Code section 8500(Added by Stats. 1972, c. 1248, p. 2436 Section 2, eff. Dec. 13, 1972)	It is unlawful to possess or take, unless otherwise expressly permitted in this chapter, mollusks, crustaceans, or other invertebrates, unless a valid tidal invertebrate permit has been issued. The taking, possessing, or landing of such invertebrates pursuant to this section shall be subject to regulations adopted by the commission.

CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
 For Site 73 and SWMU 24

Protected Amphibians	Action must be taken to avoid the take or possession of protected amphibians	Title 14 C.C.R. sections 40 & 41 (Section 40 designated effective 03/01/74; section 41 designated effective on the thirtieth day after 07/01/83)	This regulation makes it unlawful to take, possess, purchase, propagate, sell, transport, import, or export any native reptile or amphibian, or parts thereof unless under special permit from the department issued pursuant to Title 14 C.C.R. sections 650 and 670 7 of these regulations, or section 2081 of the Fish and Game Code for those species in the regulations which are also state listed species. The following amphibians are protected amphibians: a. Santa Cruz long-toed salamander b. Siskiyou mountain salamander c. Desert slender salamander d. Kern Canyon slender salamander e. Tehachapi slender salamander f. Limestone salamander g. Shasta salamander h. Black toad i. Red Legged Frog j. Southwestern toad k. Mt. Lyell salamander l. Inyo Mountains salamander m. California tiger salamander n. Olympic salamander o. Del Norte salamander p. Colorado River toad q. Yosemite toad r. Foothill yellow-legged frog s. Mountain yellow-legged frog t. Cascade frog u. Spotted frog v. Lowland leopard frog w. Tailed frog x. Western spadefoot
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CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
 For Site 73 and SWMU 24

Protected Reptiles	Action must be taken to avoid the take or possession of protected reptiles	14 C.C.R. sections 40 and 42 (section 40, see above; section 42 was deemed operative 09/10/96)	This regulation makes it unlawful to take, possess, purchase, propagate, sell, transport, import, or export any native reptile or amphibian, or parts thereof unless under special permit from the department issued pursuant to Title 14 C.C.R. sections 650 and 670.7 of these regulations, or section 2081 of the Fish and Game Code for those species in the regulations which are also state listed species. The following reptiles are protected : a. Blunt-nosed leopard lizard b. Banded Gila monster c. Southern rubber boa d. Alameda whipsnake e. San Francisco garter snake f. Giant garter snake g. Desert tortoise h. Panamint alligator lizard i. Sonora mud turtle j. Island night lizard k. Flat-tailed horned lizard l. San Diego mountain kingsnake m. Coachella Valley fringe-toed lizard n. Switak's barefoot gecko o. Lead-toed gecko p. Granite night lizard q. Orange throated whiptail r. Black legless lizard s. Coast horned lizard t. Western pond turtle u. San Joaquin coachwhip v. Two striped garter snake
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CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
 For Site 73 and SWMU 24

California Environmental Quality Implementation	Provides for Procedural Regulation for Implementation of the California Environmental Quality Act	Title 14 C.C.R. Subdivision 3, Chapter 4 commencing with section 750 (effective 04/04/73)	<p>Chapter 4 provides for procedural regulations of the implementation of CEQA. The regulations specify the objectives and criteria, and the procedures to be followed by Fish and Game in implementing CEQA. The Fish and Game CEQA implementation Regulations are to be used in conjunction with the State EIR Guidelines. <i>Public Resources Code section 21080.5</i>. CEQA provides that prior to a decision concerning a project as defined in CEQA and the State EIR Guidelines, Fish and Game acting as lead agency, or an agency with jurisdiction by law to exercise authority over natural resources, which may be affected by the project will, in consultation with the public and appropriate federal, state, and local agencies, assess in detail the potential environmental impact of a project in order that adverse effects are avoided and environmental quality is preserved, restored or enhanced to the fullest extent practicable. Project alternatives that will minimize significant adverse impact will be explored and evaluated in order to avoid to the fullest extent practicable undesirable consequences to the environment.</p> <p>Public Resources Code section 21067 provides that a "Lead agency" is the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect upon the environment. The lead agency is charged with the responsibility of consulting with all responsible agencies and with any other public agency which has jurisdiction over natural resources affected by the project which are held in trust for the people of the State to determine whether a negative declaration or environmental impact report is required for a project. <i>Public Resources Code section 21080.3</i>. A Project is an activity which may cause either a direct physical change in the environment or a reasonably foreseeable indirect physical change in the environment and which is an activity directly undertaken by any public agency. Chapter 4 is Applicable and relevant because CDFG is the trustee agency over California's natural resources and the lead agency must consult with agencies having jurisdiction over natural resources potentially affected by the project.</p>
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CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
For Site 73 and SWMU 24

Aquatic habitat/species	Action must be taken if materials deleterious to fish and wildlife are placed where they can enter waters of the State. There can be no release that would have a deleterious effect on species or habitat.	Fish and Game Code section 5650 (a), (b) & (f)	<p>These code sections prohibit the deposition into state waters of, <i>inter alia</i>, petroleum products (Section 5650(a)), factory refuse (section 5650(b)), and any substance deleterious to fish, plants or birds (section 5650(f)). These are substantive, promulgated environmental protection requirements. These requirements impose strict criminal liability on violators. (<i>People v. Chevron Chemical Company</i> (1983) 143 Cal. App. 3d 50) This imposition of strict criminal liability imposes a standard that is more stringent than federal law.</p> <p>Section 5650 makes it unlawful "to deposit in, permit to pass into, or place where it can pass into the waters of this state" enumerated substances. This section would be applicable and relevant to site 73 and SWMU 24 to the extent that contaminated groundwater has the potential of reaching surface waters or otherwise compromising surface waters</p>
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CALIFORNIA DEPARTMENT OF FISH AND GAME
LOCATION AND ACTION SPECIFIC ARARs AND TBCs
 For Site 73 and SWMU 24

Fully Protected Reptiles and Amphibians	Actions must be taken to prevent the take or possession of any fully protected reptile or amphibian.	Fish and Game Code section 5050 (Added by Stats. 1970, c. 1036, p. 1849, section 7)	<p>This section prohibits the take or possession of fully protected reptiles and amphibians or parts thereof. The following are fully protected reptiles and amphibians:</p> <ul style="list-style-type: none"> (a) Blunt-nosed leopard lizard (b) San Francisco garter snake (c) Santa Cruz long-toed salamander (e) Black toad <p>This section is applicable, relevant and appropriate to the extent that such amphibians or reptiles and/or their habitat are located on or near the site.</p>
Specially Protected Mountain Lion	Action must be taken to avoid injuring, taking, possessing or transporting any mountain lion.	Fish and Game Code sections 4800 et seq. (Prop. 117 approved June 5, 1990)	Mountain lions are specially protected mammals in California. It is unlawful to take, injure, possess, transport, or sell any mountain lion or any part or product thereof. Violation of this section is a misdemeanor. This section will be applicable and relevant to the extent that the Mountain Lion or its habitat is located on or near the site.
Furbearing Mammals	Action must be taken to avoid take	Title 14 C.C.R. section 460 (effective 07/01/59)	Regulation makes it unlawful to take Fisher, marten, river otter, desert kit fox, and red fox. This section will be applicable and relevant upon the discovery of such species on site 73 or SWMU 24.

Statutory and Regulatory Authority (In order of citation in the ARAR/TBC Table)**Fish and Game Code section 711.7.**

(a) The fish and wildlife resources are held in trust for the people of the state by and through the department.

(1) Insofar as state wildlife trust resources exist and depend upon federal proprietary lands or federal land and water adjacent to or affecting state trust resources, all persons engaging in projects or activities under federal license, contract, or permit, to the extent permitted by federal law, shall be governed by this article and shall pay project filing fees unless the payment of state filing and permit fees is explicitly preempted by the authority of the federal agency permitting the use or modification of state trust resources.

(2) Insofar as state wildlife trust resources exist and depend upon federal proprietary lands or federal lands and waters adjacent to or affecting state trust resources, all federal agencies acting in their proprietary capacity, to the extent permitted by federal law, shall be governed by this article and Sections 10005 and 21089 of the Public Resources Code, unless the payment of state filing and permit fees is explicitly preempted by the authority of a particular federal agency.

(b) If a court of competent jurisdiction finds that any provision of this section or the application thereof to any federal agency, person, or circumstances is held invalid, that invalidity shall not affect other provisions or applications of the section which can be given effect without the invalid provision or application, and to this end the provisions of this section are severable.

Fish and Game Code section 3005.

(a) It is unlawful to take birds or mammals with any net, pound, cage, trap, set line or wire, or poisonous substance, or to possess birds or mammals so taken, whether taken within or without this state, except as provided in this code or, when relating to ongoing mining operations, in accordance with a mitigation plan approved by the department.

(b) (1) Mitigation plans relating to mining operations approved by the department shall, among other criteria, require avoidance of take, where feasible, and include reasonable and practicable methods of mitigating the unavoidable take of birds and mammals. When approving mitigation plans, the department shall consider the use of the best available technology on a site-specific basis.

(2) Mitigation plans relating to mining operations approved by the department shall include provisions that address circumstances where mining operations contribute to bird deaths, including ponding of

process solutions on heap leach pads and exposure of process solution channels, solution ponds, and tailing ponds

(3) The mine operator shall prepare a mitigation plan that shall be submitted to the department for approval. For ongoing mining operations, the mitigation plan shall result in an overall reduction in take of avian or mammal species. The department shall provide an opportunity for public review and comment on each mitigation plan during the department's approval process. The mitigation plan shall be prepared on a site-specific basis and may provide for offsite mitigation measures designed to reduce avian mortality. The mine operator shall submit monthly monitoring reports on avian mortality to the department to aid in evaluating the effectiveness of onsite mitigation measures.

(4) The department shall monitor and evaluate implementation of the mitigation plan by the mine operator and require modification of the plan or other remedial actions to be taken if the overall reduction in take of avian or mammal species required pursuant to paragraph (3) is not being achieved.

(5) The mining operator shall reimburse the department for its direct costs to provide appropriate notice of the mitigation plan to affected local government entities and other affected parties. The mine operator shall provide the department a limited number of copies, as determined by the department, of the mitigation plan for public review.

(c) Proof of possession of any bird or mammal that does not show evidence of having been taken by means other than a net, pound, cage, trap, set line or wire, or poisonous substance, is prima facie evidence that the birds or mammals were taken in violation of this section.

(d) This section does not apply to the lawful taking of fur-bearing mammals, nongame birds, nongame mammals, or mammals found to be injuring crops or property, to the taking of birds or mammals under depredation permits, to taking by employees of the department acting in an official capacity, or to taking in accordance with the conditions of a scientific or propagation permit by the holder of that permit.

Fish and Game Code section 2014.

(a) It is the policy of this state to conserve its natural resources and to prevent the willful or negligent destruction of birds, mammals, fish, reptiles, or amphibia.

The state may recover damages in a civil action against any person or local agency which unlawfully or negligently takes or destroys any bird, mammal, fish, reptile, or amphibian protected by the laws of this state

(b) The measure of damages is the amount which will compensate for all the detriment proximately caused by the destruction of the birds, mammals, fish, reptiles, or amphibia.

(c) An action to recover damages under this section shall be brought in the name of the people of the state, in a court of competent jurisdiction in the county in which the cause of action arose. The State Water Resources Control Board shall be notified of, and may join in, any action brought under this section when the activities alleged to have caused the destruction of any bird, mammal, fish, reptile, or amphibian may involve either the unlawful discharge of pollutants into the waters of the state or other violation of Division 7 (commencing with Section 13000) of the Water Code.

(d) This section does not apply to persons or local agencies engaged in agricultural pest control, to the destruction of fish in irrigation canals or works or irrigation drainages, or to the destruction of birds or mammals killed while damaging crops as provided by law.

(e) No damages may be recovered against a local agency pursuant to this section if civil penalties are assessed against the local agency for the same detriment pursuant to Division 7 (commencing with Section 13000) of the Water Code.

(f) Any recovery or settlement of money damages, including, but not limited to, civil penalties, arising out of any civil action filed and maintained by the Attorney General in the enforcement of this section shall be deposited by the department in the subaccounts of the Fish and Wildlife Pollution Account in the Fish and Game Preservation Fund as specified in Section 13011.

(g) For purposes of this section, "local agency" includes any city, county, city and county, district, public authority, or other political subdivision.

Fish and Game Code section 1900.

The intent of the Legislature and the purpose of this chapter is to preserve, protect and enhance endangered or rare native plants of this state.

The Legislature finds that many species and subspecies of native plants are endangered because their habitats are threatened with destruction, drastic modification, or severe curtailment, or because of commercial exploitation or by other means, or because of disease or other factors.

Fish and Game Code section 2050.

This chapter shall be known and may be cited as the California Endangered Species Act.

Fish and Game Code section 2051.

The Legislature hereby finds and declares all of the following:

(a) Certain species of fish, wildlife, and plants have been rendered extinct as a consequence of man's activities, untempered by adequate concern and conservation.

(b) Other species of fish, wildlife, and plants are in danger of, or threatened with, extinction because their habitats are threatened with destruction, adverse modification, or severe curtailment, or because of overexploitation, disease, predation, or other factors.

(c) These species of fish, wildlife, and plants are of ecological, educational, historical, recreational, esthetic, economic, and scientific value to the people of this state, and the conservation, protection, and enhancement of these species and their habitat is of statewide concern.

Fish and Game Code section 2052.

The Legislature further finds and declares that it is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat and that it is the intent of the Legislature, consistent with conserving the species, to acquire lands for habitat for these species.

Fish and Game Code section 2052.1.

The Legislature further finds and declares that if any provision of this chapter requires a person to provide mitigation measures or alternatives to address a particular impact on a candidate species, threatened species, or endangered species, the measures or alternatives required shall be roughly proportional in extent to any impact on those species that is caused by that person. Where various measures or alternatives are available to meet this obligation, the measures or alternatives required shall maintain the person's objectives to the greatest extent possible consistent with this section. All required measures or alternatives shall be capable of successful implementation. This section governs the full extent of mitigation measures or alternatives that may be imposed on a person pursuant to this chapter. This section shall not affect the state's obligations set forth in Section 2052.

Fish and Game Code section 2053.

The Legislature further finds and declares that it is the policy of the state that state agencies should not approve projects

as proposed which would jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available consistent with conserving the species or its habitat which would prevent jeopardy.

Furthermore, it is the policy of this state and the intent of the Legislature that reasonable and prudent alternatives shall be developed by the department, together with the project proponent and the state lead agency, consistent with conserving the species, while at the same time maintaining the project purpose to the greatest extent possible.

Fish and Game Code section 2054.

The Legislature further finds and declares that, in the event specific economic, social, or other conditions make infeasible such alternatives, individual projects may be approved if appropriate mitigation and enhancement measures are provided.

Fish and Game Code section 2055.

The Legislature further finds and declares that it is the policy of this state that all state agencies, boards, and commissions shall seek to conserve endangered species and threatened species and shall utilize their authority in furtherance of the purposes of this chapter.

Fish and Game Code section 2056.

The Legislature further finds and declares that the cooperation of the owners of land which is identified as habitat for endangered species and threatened species is essential for the conservation of those species and that it is the policy of this state to foster and encourage that cooperation in furtherance of the purposes of this chapter. Therefore, a landowner of property on which an endangered, threatened, or candidate species lives shall not be liable for civil damages for injury to employees of, or persons under contract with, the department if the injury occurs while those persons are conducting survey, management, or recovery efforts with respect to those species.

Fish and Game Code section 2060.

The definitions in this article govern the construction of this chapter.

Fish and Game Code section 2061.

"Conserve," "conserving," and "conservation" mean to use, and

the use of, all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary. These methods and procedures include, but are not limited to, all activities associated with scientific resources management, such as research, census, law enforcement, habitat acquisition, restoration and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Fish and Game Code section 2062.

"Endangered species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease. Any species determined by the commission as "endangered" on or before January 1, 1985, is an "endangered species."

Fish and Game Code section 2063.

"Feasible" means feasible as defined in Section 21061.1 of the Public Resources Code.

Fish and Game Code section 2064.

"Project" means project as defined in Section 21065 of the Public Resources Code.

Fish and Game Code section 2065.

"State lead agency" means the state agency, board, or commission which is a lead agency under the California Environmental Quality Act (Division 13 (commencing with Sec. 21000) of the Public Resources Code).

Fish and Game Code section 2067.

"Threatened species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "rare" on or before January 1, 1985, is a "threatened species."

Fish and Game Code section 2068.

"Candidate species" means a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list.

Fish and Game Code section 2070.

The commission shall establish a list of endangered species and a list of threatened species. The commission shall add or remove species from either list if it finds, upon the receipt of sufficient scientific information pursuant to this article, that the action is warranted.

Fish and Game Code section 2071.

The commission shall adopt guidelines by which an interested person may petition the commission to add a species to, or to remove a species from either the list of endangered or the list of threatened species.

Fish and Game Code section 2071.5.

The department shall recommend, and the commission shall adopt, criteria for determining if a species is endangered or threatened.

Fish and Game Code section 2072.

The petition shall be written, shall be clearly identified as a petition, and shall clearly indicate the administrative measure recommended.

Fish and Game Code section 2072.3.

To be accepted, a petition shall, at a minimum, include sufficient scientific information that a petitioned action may be warranted. Petitions shall include information regarding the population trend, range, distribution, abundance, and life history of a species, the factors affecting the ability of the population to survive and reproduce, the degree and immediacy of the threat, the impact of existing management efforts, suggestions for future management, and the availability and sources of information. The petition shall also include information regarding the kind of habitat necessary for species survival, a detailed distribution map, and any other factors that the petitioner deems relevant.

Fish and Game Code section 2072.7.

The department may, in the absence of a petition from an interested party, recommend to the commission that it add a species to, or remove a species from, either the list of endangered species or the list of threatened species. If it makes a recommendation under this section, the department shall include the information specified in Section 2072.3. A department recommendation under this section shall be considered by the commission as a petition with a departmental recommendation to accept and consider as described in subdivision (b) of Section 2073.5, and is subject to Sections 2074 to 2079, inclusive.

Fish and Game Code section 2073.

Within 10 days of the receipt of a petition from an interested person under Section 2072.3, the commission shall refer the petition to the department.

Fish and Game Code section 2073.3.

(a) The commission shall publish a notice in the California Regulatory Notice Register of the receipt of a petition prepared pursuant to Section 2072.3 by the department, or by an interested party and referred to the department, pursuant to Section 2073, or the commencement of an evaluation, to add a species to, remove a species from, or change the status of a species on, the list of endangered species or the list of threatened species pursuant to Section 2072.7. At a minimum, the notice shall include all of the following:

- (1) The scientific and common name of the species.
 - (2) Habitat type, if that information is available in the petition.
 - (3) The location where interested persons can submit information to the department relating to the petitioned species.
- (b) The commission shall notify interested persons pursuant to Section 2078, by mail, of the notices prepared pursuant to subdivision (a), and shall mail a copy of the notice to those persons.

Fish and Game Code section 2073.4.

(a) A person may submit information to the department relating to the petitioned species during the evaluation of the petition pursuant to Section 2073.5. The information shall relate to the matters identified in Section 2072.3.

(b) Within 10 days after receiving information pursuant to subdivision (a), the department shall notify the petitioner regarding its content.

Fish and Game Code section 2073.5.

(a) Within 90 days of receipt of the petition, the department shall evaluate the petition on its face and in relation to other relevant information the department possesses or receives, and submit to the commission its written evaluation report with one of the following recommendations to the commission:

(1) Based upon the information contained in the petition, there is not sufficient information to indicate that the petitioned action may be warranted, and the petition should be rejected.

(2) Based upon the information contained in the petition, there is sufficient information to indicate that the petitioned action may be warranted, and the petition should be accepted and considered.

(b) Upon the request of the director, the commission may grant the department an extension of time, not to exceed 30 days, to allow the department additional time to further analyze and evaluate the petition and complete its evaluation report.

(c) The department's evaluation report shall include copies of, or a list of, all information submitted to the department pursuant to subdivision (a) of Section 2073.4 during its evaluation of the petition. If copies are not included, the report shall state where the listed information is available for review.

Fish and Game Code section 2073.7.

A petitioner may amend a petition at any time prior to the beginning of the meeting held by the commission pursuant to Section 2074.2. However, if the commission determines that the amendment is substantive, the commission shall resubmit the petition to the department for review pursuant to Section 2073.5, publish notice of the amendment pursuant to Section 2073.3, and renotice or continue any hearing scheduled pursuant to Section 2074 in order to provide adequate opportunity for public comment.

Fish and Game Code section 2074.

The commission shall schedule the petition for consideration at its next available meeting, but not sooner than 30 days after receipt of the petition and public release of the evaluation report, and distribute its pending agenda to interested persons pursuant to Section 2078. The commission also shall make the petition, evaluation report, and other materials received available for review.

Fish and Game Code section 2074.2.

(a) At the scheduled meeting, the commission shall consider the petition, the department's written report, and comments received, and the commission shall make and enter in its public record one of the following findings:

(1) If the commission finds that the petition does not provide sufficient information to indicate that the petitioned action may be warranted, the commission shall publish a notice of finding that the petition is rejected, including the reasons why the petition is not sufficient.

(2) If the commission finds that the petition provides sufficient information to indicate that the petitioned action may be warranted, the commission shall publish a notice of finding that the petition is accepted for consideration. If the accepted petition recommends the addition of a species to either the list of endangered species or the list of threatened species, the commission shall include in the notice that the petitioned species is a candidate species. The commission shall maintain a list of species which are candidate species.

(b) The commission shall publish and distribute the findings relating to the petition pursuant to Section 2078.

Fish and Game Code section 2074.4.

If a petition is accepted by the commission for consideration, all reasonable attempts shall be made to notify affected and interested parties and to solicit data and comments on the petitioned action from as many persons as is practicable. In addition to commission efforts to provide notification through distribution of the commission agenda and minutes pursuant to Section 2078, the department shall immediately undertake efforts to notify affected and interested parties. Methods of notification may include, but are not limited to, correspondence, newspaper notices, and press releases, and notification shall include notice to owners of that land which may provide habitat essential to the continued existence of the species, unless the director determines that ownership is so widespread, fragmented, or complex as to make individual notice impractical.

Fish and Game Code section 2074.6.

The department shall promptly commence a review of the status of the species concerned in the petition. Within 12 months of the date of publication of a notice of acceptance of a petition for consideration by the commission pursuant to paragraph (2) of subdivision (a) of Section 2074.2, the department shall provide a written report to the commission, based upon the best scientific information available to the department, which indicates whether the

petitioned action is warranted, which includes a preliminary identification of the habitat that may be essential to the continued existence of the species, and which recommends management activities and other recommendations for recovery of the species.

Fish and Game Code section 2074.8.

Nothing in this article imposes any duty or obligation for, or otherwise requires, the commission or the department to undertake independent studies or other assessments of any species when reviewing a petition and its attendant documents and comments.

Fish and Game Code section 2075.

The commission shall schedule the petition for final consideration at its next available meeting after receipt of the departmental report provided pursuant to Section 2074.6 and shall distribute the pending agenda for that meeting pursuant to Section 2074.6.

Fish and Game Code section 2078.
The commission shall make the department's report, or copies thereof, which was provided, pursuant to Section 2074.6, available for review upon request.

Fish and Game Code section 2075.5.

At the meeting scheduled pursuant to Section 2075, the commission shall make one of the following findings:

- (1) The petitioned action is not warranted, in which case the finding shall be entered in the public records of the commission and the petitioned species shall be removed from the list of candidate species maintained pursuant to Section 2074.2.
- (2) The petitioned action is warranted, in which case the commission shall publish a notice of that finding and a notice of proposed rulemaking pursuant to Section 11346.4 of the Government Code to add the species to, or remove the species from, the list of endangered species or the list of threatened species. Further proceedings of the commission on the petitioned action shall be made in accordance with Chapter 3.5 (commencing with Section 11340) of Part 1 of Division 3 of Title 2 of the Government Code.

Fish and Game Code section 2076.

Any finding pursuant to this section is subject to judicial review under Section 1094.5 of the Code of Civil Procedure.

Fish and Game Code section 2076.5.

Notwithstanding Sections 2071 to 2075.5, inclusive, the

commission may adopt a regulation which adds a species to the list of endangered species or to the list of threatened species as an emergency regulation pursuant to Article 1.5 (commencing with Section 240) to Chapter 2 of Division 1 if the commission finds that there is any emergency posing a significant threat to the continued existence of the species. The commission shall notify affected or interested persons of the adoption of such an emergency regulation pursuant to the methods described in Section 2074.4.

Fish and Game Code section 2077.

(a) The department shall review species listed as an endangered species or as a threatened species every five years to determine if the conditions that led to the original listing are still present. The review shall be conducted based on information which is consistent with the information specified in Section 2072.3 and which is the best scientific information available to the department. The review shall include a review of the identification of the habitat that may be essential to the continued existence of the species and the department's recommendations for management activities and other recommendations for recovery of the species. The department shall notify any person who has notified the commission, in writing with their address, of their interest, and the department may notify any other person.

(b) Review of species that are listed by both the commission and the United States Department of Interior will be conducted in conjunction with the five-year review process of the United States Department of Interior.

(c) Initial review of those species listed by the commission before January 1, 1982, that are not listed by the federal government shall be undertaken and completed by July 1, 1987. Initial review of those species listed by the commission after January 1, 1982, that are not listed by the federal government shall be undertaken and completed within five years of the date the species was originally listed by the commission.

(d) Notwithstanding any other provision of this section, the commission or the department may review a species at any time based upon a petition or upon other data available to the department and the commission.

(e) The department shall report in writing to the commission the results of its five-year review for each listed species. The commission shall treat any report of the department under this subdivision which contains a recommendation to add a species to, or remove a species from, the list of endangered species or the list of threatened species as a department recommendation submitted pursuant to Section 2072.7.

Fish and Game Code section 2078.

(a) To provide all interested persons access to information and notification of pending listing or delisting actions, the commission shall distribute the related agenda of pending actions and those portions of its minutes of actions taken under this article to any individuals who have notified the commission, in writing with their address, of their interest. This notification shall be published in the California Regulatory Notice Register and shall meet the requirements of public notice as required for commission action under Section 2073.3, 2074, 2074.2, 2075, or 2077.

(b) The commission may impose an annual fee on those persons who request inclusion on the list to be notified in order to offset the cost of establishing and maintaining the list, and preparing and mailing the notices. Fees received pursuant to this section shall be deposited in the Fish and Game Preservation Fund.

Fish and Game Code section 2079.

The department shall, by January 30 of each year, beginning January 30, 1986, prepare a report summarizing the status of all state listed endangered, threatened, and candidate species, and shall submit the report to the commission, the Legislature, the Governor, and all individuals who have notified the commission, in writing with their address, of their interest. This report shall include, but not be limited to, a listing of those species designated as endangered, threatened, and candidate species, a discussion of the current status of endangered, threatened, or candidate species, and the time frames for the review of listed species pursuant to this article.

Fish and Game Code section 2080.

No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided in this chapter, the Native Plant Protection Act (Chapter 10 (commencing with Section 1900) of this code), or the California Desert Native Plants Act (Division 23 (commencing with Section 80001) of the Food and Agricultural Code).

Fish and Game Code section 3511.

Fully protected birds or parts thereof may not be taken or

possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected bird and no such permits or licenses heretofore issued shall have any force or effect for any such purpose; except that the commission may authorize the collecting of such species for necessary scientific research and may authorize the live capture and relocation of such species pursuant to a permit for the protection of livestock. Legally imported fully protected birds or parts thereof may be possessed under a permit issued by the department.

The following are fully protected birds:

- (a) American peregrine falcon (*Falco peregrinus anatum*)
- (b) Brown pelican
- (c) California black rail (*Laterallus jamaicensis coturniculus*)
- (d) California clapper rail (*Rallus longirostris obsoletus*)
- (e) California condor (*Gymnogyps californianus*)
- (f) California least tern (*Sterna albifrons browni*)
- (g) Golden eagle
- (h) Greater sandhill crane (*Grus canadensis tabida*)
- (i) Light-footed clapper rail (*Rallus longirostris levipes*)
- (j) Southern bald eagle (*Haliaeetus leucocephalus leucocephalus*)
- (k) Trumpeter swan (*Cygnus buccinator*)
- (l) White-tailed kite (*Elanus leucurus*)
- (m) Yuma clapper rail (*Rallus longirostris yumanensis*)

Fish and Game Code section 3513.

It is unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the Migratory Treaty Act.

Fish and Game Code section 4700.

Fully protected mammals or parts thereof may not be taken or possessed at any time and no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to take any fully protected mammal and no permits or licenses heretofore issued shall have any force or effect for that purpose. However, the commission may authorize the collecting of those species for necessary scientific research. Legally imported fully protected mammals or parts thereof may be possessed under a permit issued by the department.

The following are fully protected mammals:

- (a) Morro Bay kangaroo rat (*Dipodomys heermanni morroensis*).

(b) Bighorn sheep (*Ovis canadensis*), except Nelson bighorn sheep (subspecies *Ovis canadensis nelsoni*) as provided by subdivision (b) of Section 4902.

(c) Northern elephant seal (*Mirounga angustirostris*).

(d) Guadalupe fur seal (*Arctocephalus townsendi*).

(e) Ring-tailed cat (genus *Bassariscus*).

(f) Pacific right whale (*Eubalaena sieboldi*).

(g) Salt-marsh harvest mouse (*Reithrodontomys raviventris*).

(h) Southern sea otter (*Enhydra lutris nereis*).

(i) Wolverine (*Gulo luscus*).

Fish and Game Code section 3503.5.

It is unlawful to take, possess, or destroy any birds in the orders Falconiformes or Strigiformes (birds-of-prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto.

Fish and Game Code section 3800.

(a) All birds occurring naturally in California that are not resident game birds, migratory game birds, or fully protected birds are nongame birds. It is unlawful to take any nongame bird except as provided in this code or in accordance with regulations of the commission or, when relating to mining operations, a mitigation plan approved by the department.

(b) (1) Mitigation plans relating to mining operations approved by the department shall, among other criteria, require avoidance of take, where feasible, and include reasonable and practicable methods of mitigating the unavoidable take of birds and mammals. When approving mitigation plans, the department shall consider the use of the best available technology on a site-specific basis.

(2) Mitigation plans relating to mining operations approved by the department shall include provisions that address circumstances where mining operations contribute to bird deaths, including ponding of process solutions on heap leach pads and exposure of process solution channels, solution ponds, and tailing ponds.

(3) The mine operator shall prepare a mitigation plan that shall be submitted to the department for approval. For ongoing mining operations, the mitigation plan alone or in conjunction with regulations adopted by the commission shall result in an overall reduction in take of avian or mammal species. The department shall provide an opportunity for public review and comment on each mitigation plan during the department's approval process. The

mitigation plan shall be prepared on a site-specific basis and may provide for offsite mitigation measures designed to reduce avian mortality. The mine operator shall submit monthly monitoring reports on avian mortality to the department to aid in evaluating the effectiveness of onsite mitigation measures.

(4) The mining operator shall reimburse the department for its direct costs to provide appropriate notice of the mitigation plan to affected local government entities and other affected parties. The mine operator shall provide the department a limited number of copies, as determined by the department, of the mitigation plan for public review.

(c) The department shall monitor and evaluate implementation of the mitigation plan by the mine operator and require modification of the plan or other remedial actions to be taken if the overall reduction in take of avian or mammal species required pursuant to paragraph (3) is not being achieved.

Fish and Game Code section 4150.

All mammals occurring naturally in California which are not game mammals, fully protected mammals, or fur-bearing mammals, are nongame mammals. Nongame mammals or parts thereof may not be taken or possessed except as provided in this code or in accordance with regulations adopted by the commission.

Title 14

472. General Provisions.

Except as otherwise provided in Sections 478 and 485 and subsections (a) through (d) below, nongame birds and mammals may not be taken.

(a) The following nongame birds and mammals may be taken at any time of the year and in any number except as prohibited in

Chapter 6: English sparrow, starling, coyote, weasels, skunks, opossum, moles and rodents (excluding tree and flying squirrels, and those listed as furbearers, endangered or threatened species).

(b) Fallow, sambar, sika, and axis deer may be taken only concurrently with the general deer season.

(c) Aoudad, mouflon, tahr, and feral goats may be taken all year.

(d) American crows (*Corvus brachyrhynchos*) may be taken only under the provisions of Section

485 and by landowners or tenants, or by persons authorized in writing by such landowners or tenants, when American crows are committing or about to commit depredations upon ornamental or shade trees, agricultural crops, livestock, or wildlife, or when concentrated in such numbers and manner as to constitute a health hazard or other nuisance. Persons authorized by landowners or tenants to take American crows shall keep such written authorization in their possession when taking, transporting or possessing American crows. American crows may be taken only on the lands where depredations are occurring or where they constitute a health hazard or nuisance. If required by Federal regulations, landowners or tenants shall obtain a Federal migratory bird depredation permit before taking any American crows or authorizing any other person to take them.

American crows may be taken under the provisions of this subsection only by firearm, bow and arrow, falconry or by toxicants by the Department of Food and Agriculture for the specific purpose of taking depredating crows. Toxicants can be used for taking crows only under the supervision of employees or officers of the Department of Food and Agriculture or federal or county pest control officers or employees acting in their official capacities and possessing a qualified applicator certificate issued pursuant to sections 14151-14155 of the Food and Agriculture Code. Such toxicants must be applied according to their label requirements developed pursuant to sections 6151-6301, title 3, California Code of Regulations.

475. Methods of Take for Nongame Birds and Nongame Mammals.

Nongame birds and nongame mammals may be taken in any manner except as follows:

- (a) Poison may not be used.
- (b) Recorded or electrically amplified bird or mammal calls or sounds or recorded or electrically amplified imitations of bird or mammal calls or sounds may not be used to take any nongame bird or nongame mammal except coyotes, bobcats, American crows and starlings.
- (c) Fallow deer, sambar deer, axis deer, sika deer, aoudad, mouflon, tahr and feral goats may be taken only with the equipment and ammunition specified in Section 353 of these regulations.
- (d) Traps may be used to take nongame birds and nongame mammals only in accordance with the provisions of section 465.5 of these regulations and sections 3003.1 and 4004 of the Fish and Game Code.

(e) No feed, bait or other material capable of attracting a nongame mammal may be placed or used in conjunction with dogs for the purpose of taking any nongame mammals. Nothing in this section shall prohibit an individual operating in accordance with the provisions of Section 465.5 from using a dog to follow a trap drag and taking the nongame mammal caught in that trap.

Fish and Game code section 8500.

Except as otherwise expressly permitted in this chapter, no mollusks, crustaceans, or other invertebrates may be taken, possessed aboard a boat, or landed for commercial purposes by any person in any tide pool or tidal area, including tide flats or other areas between the high tidemark and 1,000 feet beyond the low tidemark, unless a valid tidal invertebrate permit has been issued to that person that has not been suspended or revoked. The taking, possessing, or landing of mollusks, crustaceans, or other invertebrates pursuant to this section shall be subject to regulations adopted by the commission.

Title 14

40. General Provisions Relating to Native Reptiles and Amphibians.

(a) Prohibition on Take, Possession, Purchase, Propagation, Sale, Import, or Export. It is unlawful to take, possess, purchase, propagate, sell, transport, import or export any native reptile or amphibian, or part thereof, except as provided in this chapter and in Chapter 2 of this subdivision relating to sportfishing and frogging.

(b) Except for dried or processed reptile skins, it is unlawful to display, in any place of business where pets or other animals are sold, native reptiles or amphibians which cannot lawfully be sold.

(c) Progeny resulting from pregnant native reptiles or amphibians collected from the wild must be transferred to another person or to a scientific or educational institution within 45 days of birth or hatching. Persons receiving such progeny shall comply with the bag and possession limits specified in sections 41.5 and 42.5.

(d) Reptiles or amphibians which have been in captivity, including wild-caught and captive-bred individuals or offspring, shall

not be released into the wild.

(e) Biological Supply Houses and Exempt Organizations.

(1) Biological Supply Houses. The department may issue permits to owners of biological supply houses to sell native reptiles and amphibians to scientific or educational institutions, pursuant to Section 651 of these regulations.

(2) Organizations and Schools Exempt from Permit. Institutions or organizations engaged in bona fide scientific study of native wildlife, whose specimens are readily available for use or viewing by the public at large on a regular basis, and government accredited schools that are open to the public may possess, accept donations of, or exchange, purchase or sell between organizations, native reptiles and amphibians without a permit.

(f) Except as otherwise provided in federal law, the Fish and Game Code or Section 671, no permit is required to import, export, transport, possess, propagate, buy or sell nonnative reptiles or amphibians.

41. Protected Amphibians.

Except under special permit from the department issued pursuant to sections 650 and 670.7 of these regulations, or Section 2081 of the Fish and Game Code, none of the following amphibians may be taken or possessed at any time:

- (a) Santa Cruz long-toed salamander (*Ambystoma macrodactylum croceum*).
- (b) Siskiyou mountain salamander (*Plethodon stormi*).
- (c) Desert slender salamander (*Batrachoseps aridus*).
- (d) Kern Canyon slender salamander (*Batrachoseps simatus*).
- (e) Tehachapi slender salamander (*Batrachoseps stebbinsi*).
- (f) Limestone salamander (*Hydromantes brunus*).
- (g) Shasta salamander (*Hydromantes shastae*).
- (h) Black toad (*Bufo exsul*).
- (i) Red-legged frog (*Rana aurora*).

- (j) Southwestern toad (*Bufo microscaphus*).
- (k) Mt. Lyell salamander (*Hydromantes platycephalus*).
- (l) Inyo Mountains salamander (*Batrachoseps campi*).
- (m) California tiger salamander (*Ambystoma californiense*).
- (n) Olympic salamander (*Rhyacotriton olympicus*).
- (o) Del Norte salamander (*Plethodon elongatus*).
- (p) Colorado River toad (*Bufo alvarius*).
- (q) Yosemite toad (*Bufo canorus*).
- (r) Foothill yellow-legged frog (*Rana boylei*).
- (s) Mountain yellow-legged frog (*Rana muscosa*).
- (t) Cascade frog (*Rana cascade*).
- (u) Spotted frog (*Rana pretiosa*).
- (v) Lowland leopard frog (*Rana yavapaiensis*).
- (w) Tailed frog (*Ascaphus truei*).
- (x) Western spadefoot (*Scaphiopus hammondi*).

42. Protected Reptiles.

Except under special permit from the department issued pursuant to sections 650 and 670.5 of these regulations, or Section 2081 of the Fish and Game Code, none of the following reptiles may be taken or possessed at any time.

- (a) Blunt-nosed leopard lizard (*Gambelia sila*).
- (b) Banded Gila monster (*Heloderma suspectum cinctum*).
- (c) Southern rubber boa (*Charina bottae umbratica*).
- (d) Alameda whipsnake (*Masticophis lateralis euryxanthus*).
- (e) San Francisco garter snake (*Thamnophis sirtalis tetrataenia*).

- (f) Giant garter snake (*Thamnophis gigas*).
- (g) Desert tortoise (*Gopherus agassizi*).
- (h) Panamint alligator lizard (*Gerrhonotus panamintinus*).
- (i) Sonora mud turtle (*Kinosternon sonoriense*).
- (j) Island night lizard (*Xantusia riversiana*).
- (k) Flat-tailed horned lizard (*Phrynosoma mcallii*).
- (l) San Diego mountain kingsnake (*Lampropeltis zonata pulchra*).
- (m) Coachella Valley fringe-toed lizard (*Uma inornata*).
- (n) Switak's barefoot gecko (*Coleonyx switaki*).
- (o) Leaf-toed gecko (*Phyllodactylus xanti*).
- (p) Granite night lizard (*Xantusia henshawi*).
- (q) Orange-throated whiptail (*Cnemidophorus hyperythrus*).
- (r) Black legless lizard (*Anniella pulchra nigra*).
- (s) Coast horned lizard (*Phrynosoma coronatum*).
- (t) Western pond turtle (*Clemmys marmorata*).
- (u) San Joaquin coachwhip (*Masticophis flagellum ruddocki*).
- (v) Two striped garter snake (*Thamnophis hammondi*).

Fish and Game Code section 5650.

(a) Except as provided in subdivision (b), it is unlawful to deposit in, permit to pass into, or place where it can pass into the waters of this state any of the following:

(1) Any petroleum, acid, coal or oil tar, lampblack, aniline, asphalt, bitumen, or residuary product of petroleum, or carbonaceous material or substance.

(2) Any refuse, liquid or solid, from any refinery, gas house,

tannery, distillery, chemical works, mill, or factory of any kind.

(3) Any sawdust, shavings, slabs, or edgings.

(4) Any factory refuse, lime, or slag.

(5) Any cocculus indicus.

(6) Any substance or material deleterious to fish, plant life, or bird life.

(b) This section does not apply to a discharge or a release that is expressly authorized pursuant to , and in compliance with, the terms and conditions of a waste discharge requirement pursuant to Section 13263 of the Water Code or a waiver issued pursuant to subdivision (a) of Section 13269 of the Water Code issued by the State Water Resources Control Board or a regional water quality control board after a public hearing, or that is expressly authorized pursuant to, and in compliance with, the terms conditions of a federal permit for which the State Water Resources Control Board or a regional water quality control board has, after a public hearing, issued a water quality certification pursuant to Section 13160 of the Water Code. This section does not confer additional authority on the State Water Resources Control Board, a regional water quality control board, or any other entity.

(f) The affirmative defense in subdivision (c) does not apply and may not be raised by the defendant in any case in which a district attorney, city attorney, or Attorney General alleges, and the court finds, that the defendant acted willfully.

Fish and Game Code section 4800.

(a) The mountain lion (genus Felis) is a specially protected mammal under the laws of this state.

(b) It is unlawful to take, injure, possess, transport, import, or sell any mountain lion or any part or product thereof, except as specifically provided in this chapter or in Chapter 2 (commencing with Section 2116) of Division 3. This chapter does not prohibit the sale or possession of any mountain lion or any part or product thereof, when the owner can demonstrate that the mountain lion, or part or product thereof, was in the person's possession on June 6, 1990.

(c) Any violation of this section is a misdemeanor punishable by imprisonment in the county jail for not more than one year, or a fine of not more than ten thousand dollars (\$10,000), or by both that fine and imprisonment. An individual is not guilty of a violation of this section if it is demonstrated that, in taking or injuring a mountain lion, the individual was acting in self-defense or in defense of others.

(d) Section 219 does not apply to this chapter. Neither the commission nor the department shall adopt any regulation that

conflicts with or supersedes any of the provisions of this chapter.

Title 14 California Code of Regulations section 460.

Fisher, Marten, River Otter, Desert Kit Fox and Red Fox. Fisher, marten, river otter, desert kit fox, and red fox may not be taken at any time.

**South Coast Air Quality Management
District Letter to Department of Toxic
Substances Control**

26 July 2001



South Coast Air Quality Management District

21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • <http://www.aqmd.gov>

CTO-151 / 0301
File: 02184, 0222

July 26, 2001

Ms. Katherine K. Leibel
Remedial Project Manager
Department of Toxic Substances Control
5796 Corporate Ave.
Cypress, CA 90630

Subject: Applicable or Relevant and Appropriate Requirements (ARARs)
for IR Site 73 and SWMU 24 at NWS, Seal Beach.

Dear Ms. Leibel:

This letter is in response to your request dated July 2, 2001 for subject site Applicable or Relevant and Appropriate Requirements (ARARs). Based on review of the project summary provided with your request, the South Coast Air Quality Management District (District) requires a Site Specific Soil Mitigation Plan for this project. This plan will contain requirements and conditions to comply with District Rule 1166. A plan application package containing a sample and a copy of the Rule 1166 are enclosed for your review.

Due to excavation activities, dust and maybe odors from the site may create public nuisance concerns. District Rules 402 and 403 regulate these issues and are also enclosed for your convenience.

If you need further information or assistance, please contact Ranjit Vishwanath at 909 396-2682 or my office at 909 396-2575.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Larry Bowen', is written over the typed name.

Larry Bowen
Manager
Toxics and Waste Management Unit

rv/DJ/LB

DTSCarar

(Adopted May 7, 1976)

RULE 402. NUISANCE

A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.

(Adopted May 7, 1976)(Amended November 6, 1992)
(Amended July 9, 1993)(Amended February 14, 1997)
(Amended December 11, 1998)

RULE 403. FUGITIVE DUST

(a) Purpose

The purpose of this rule is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions.

(b) Applicability

The provisions of this rule shall apply to any activity or man-made condition capable of generating fugitive dust.

(c) Definitions

(1) ACTIVE OPERATIONS shall mean any activity capable of generating fugitive dust, including, but not limited to, earth-moving activities, construction/demolition activities, or heavy- and light-duty vehicular movement.

(2) ANEMOMETERS are devices used to measure wind speed and direction in accordance with the performance standards, and maintenance and calibration criteria as contained in the most recent Rule 403 Implementation Handbook, now or hereafter adopted by the Governing Board.

(3) BEST AVAILABLE CONTROL MEASURES represent fugitive dust control actions which are required to be implemented within the boundaries of the South Coast Air Basin. A detailed listing of best available control measures for each fugitive dust source type shall be as contained in the most recent Rule 403 Implementation Handbook, now or hereafter adopted by the Governing Board.

(4) BULK MATERIAL is sand, gravel, soil, aggregate material less than two inches in length or diameter, and other organic or inorganic particulate matter.

(5) CHEMICAL STABILIZERS mean any non-toxic chemical dust suppressant which must not be used if prohibited for use by the Regional Water Quality Control Boards, the California Air Resources Board, the U.S. Environmental Protection Agency (U.S. EPA), or any applicable law, rule or regulation; and should meet any specifications, criteria, or tests required by any federal, state, or local water agency. Unless otherwise indicated, the use of a non-toxic chemical stabilizer shall be of sufficient concentration and application frequency to maintain a stabilized surface.

(6) CONSTRUCTION/DEMOLITION ACTIVITIES are any on-site mechanical

activities preparatory to or related to the building, alteration, rehabilitation, demolition or improvement of property, including, but not limited to the following activities; grading, excavation, loading; crushing, cutting, planing, shaping or ground breaking.

(7) CONTINGENCY NOTIFICATION means that the U.S. EPA has determined and notified the District in writing that PM_{10} contingency requirements must be implemented based on a finding that: (1) PM_{10} and PM_{10} precursor emissions reductions were less than required at any three-year milestone reporting interval, or (2) the region failed to attain the PM_{10} standards within the time frames allotted under the Federal Clean Air Act, or (3) if as part of an Attainment/Maintenance Plan, the region is no longer in attainment of the PM_{10} standards.

(8) CONTRACTOR means any person who has a contractual arrangement to conduct an active operation for another person.

(9) DISTURBED SURFACE AREA means a portion of the earth's surface which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed natural soil condition, thereby increasing the potential for emission of fugitive dust. This definition excludes those areas which have:

(A) been restored to a natural state, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby natural conditions;

(B) been paved or otherwise covered by a permanent structure; or

(C) sustained a vegetative ground cover over at least 95 percent of an area for a period of at least 6 months.

(10) DUST SUPPRESSANTS are water, hygroscopic materials, or non-toxic chemical stabilizers used as a treatment material to reduce fugitive dust emissions.

(11) EARTH-MOVING ACTIVITIES shall include, but not be limited to, grading, earth cutting and filling operations, loading or unloading of dirt or bulk materials, adding to or removing from open storage piles of bulk materials, landfill operations, or soil mulching.

(12) FUGITIVE DUST means any solid particulate matter that becomes airborne, other than that emitted from an exhaust stack, directly or indirectly as a result of the activities of man.

(13) INACTIVE DISTURBED SURFACE AREA means any disturbed surface area upon which active operations have not occurred or are not expected to occur for a period of ten consecutive days.

(14) **LARGE OPERATIONS** means any active operations on property which contains in excess of 100 acres of disturbed surface area; or any earth-moving operation which exceeds a daily earth-moving or throughput volume of 7,700 cubic meters (10,000 cubic yards) three times during the most recent 365-day period.

(15) **MEDIUM OPERATIONS** means any active operations on property which contains between 50 and 100 acres of disturbed surface area; or any earth-moving operation with a daily earth-moving or throughput volume of between 3,850 cubic meters (5,000 cubic yards) and 7,700 cubic meters (10,000 cubic yards) three times during the most recent 365-day period.

(16) **NON-ROUTINE** means any non-periodic active operation which occurs no more than three times per year, lasts less than 30 cumulative days per year, and is scheduled less than 30 days in advance.

(17) **OPEN STORAGE PILE** is any accumulation of bulk material with 5 percent or greater silt content which is not fully enclosed, covered or chemically stabilized, and which attains a height of three feet or more and a total surface area of 150 or more square feet. Silt content level is assumed to be 5 percent or greater unless a person can show, by sampling and analysis in accordance with ASTM Method C-136 or other equivalent method approved in writing by the Executive Officer, the California Air Resources Board, and the U. S. EPA, that the silt content is less than 5 percent. The results of ASTM Method C-136 or equivalent method are valid for 60 days from the date the sample was taken.

(18) **PARTICULATE MATTER** means any material, except uncombined water, which exists in a finely divided form as a liquid or solid at standard conditions.

(19) **PAVED ROAD** means an improved street, highway, alley, public way, or easement that is covered by typical roadway materials excluding access roadways that connect a facility with a public paved roadway and are not open to through traffic. Public paved roads are those open to public access and that are owned by any federal, state, county, municipal or any other governmental or quasi-governmental agencies. Private paved roads are any paved roads not defined as public.

(20) **PM₁₀** is particulate matter with an aerodynamic diameter smaller than or equal to 10 microns as measured by the applicable State and Federal reference test methods.

(21) **PROPERTY LINE** means the boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all

sub-tenancies.

(22) REASONABLY AVAILABLE CONTROL MEASURES are appropriate techniques and procedures used to prevent or reduce the emission and airborne transport of fugitive dust, outside the boundaries of the South Coast Air Basin. These include, but are not limited to, application of dust suppressants, use of coverings or enclosures, paving, enshrouding, planting, reduction of vehicle speeds, and other measures as specified by the Executive Officer. A detailed listing of reasonably available control measures for each fugitive dust source type shall be as contained in the most recent Rule 403 Implementation Handbook, now or hereafter adopted by the Governing Board.

(23) SILT means any aggregate material with a particle size less than 74 micrometers in diameter which passes through a No. 200 Sieve.

(24) SIMULTANEOUS SAMPLING means the operation of two PM_{10} samplers in such a manner that one sampler is started within five minutes of the other, and each sampler is operated for a consecutive period which must be not less than 290 minutes and not more than 310 minutes.

(25) SOUTH COAST AIR BASIN means the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County as defined in California Code of Regulations, Title 17, Section 60104. The area is bounded on the west by the Pacific Ocean, on the north and east by the San Gabriel, San Bernardino, and San Jacinto Mountains, and on the south by the San Diego county line.

(26) STABILIZED SURFACE means:

(A) any disturbed surface area or open storage pile which is resistant to wind-driven fugitive dust;

(B) any unpaved road surface in which any fugitive dust plume emanating from vehicular traffic does not exceed 20 percent opacity.

(27) UNPAVED ROADS are any unsealed or unpaved roads, equipment paths, or travel ways that are not covered by one of the following: concrete, asphaltic concrete, recycled asphalt, asphalt or other materials with equivalent performance as determined by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Public unpaved roads are any unpaved roadway owned by Federal, State, county, municipal or other governmental or quasi-governmental agencies. Private unpaved roads are all other unpaved roadways not defined as public.

(28) VISIBLE ROADWAY DUST means any sand, soil, dirt, or other solid particulate matter which is visible upon paved road surfaces and which can be

removed by a vacuum sweeper or a broom sweeper under normal operating conditions.

(29) WIND-DRIVEN FUGITIVE DUST means visible emissions from any disturbed surface area which is generated by wind action alone.

(30) WIND GUST is the maximum instantaneous wind speed as measured by an anemometer.

(d) Requirements

(1) A person shall not cause or allow the emissions of fugitive dust from any active operation, open storage pile, or disturbed surface area such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source.

(2) A person conducting active operations within the boundaries of the South Coast Air Basin shall utilize one or more of the applicable best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation.

(3) A person conducting active operations outside the boundaries of the South Coast Air Basin may utilize reasonably available control measures in lieu of best available control measures to minimize fugitive dust emissions from each fugitive dust source type which is part of the active operation.

(4) A person shall not cause or allow PM_{10} levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples collected on high-volume particulate matter samplers or other U.S. EPA-approved equivalent method for PM_{10} monitoring. If sampling is conducted, samplers shall be:

(A) Operated, maintained, and calibrated in accordance with 40 Code of Federal Regulations (CFR), Part 50, Appendix J, or appropriate U.S. EPA-published documents for U.S. EPA-approved equivalent method(s) for PM_{10} .

(B) Reasonably placed upwind and downwind of key activity areas and as close to the property line as feasible, such that other sources of fugitive dust between the sampler and the property line are minimized.

(5) Any person in the South Coast Air Basin shall:

(A) prevent or remove within one hour the track-out of bulk material onto public paved roadways as a result of their operations; or

(B) take at least one of the actions listed in Table 3 and:

(i) prevent the track-out of bulk material onto public paved roadways as a result of their operations and remove such material at anytime track-out extends for a cumulative distance of greater than 50 feet on to any paved public road during active operations; and

(ii) remove all visible roadway dust tracked-out upon public paved roadways as a result of active operations at the conclusion of each work day when active operations cease.

(e) Contingency Requirements

When a contingency notification has occurred, the requirements of this subdivision shall become effective in the county subject to the notification 60 days after the first publication date in newspapers of general circulation in that county. Such publication shall specify that a contingency notification has occurred, and that any person who conducts or authorizes the conducting of a medium operation shall be required to comply with the provisions of subdivision (f), in addition to the requirements of subdivision (d).

(f) Special Requirements for Large Operations, and Medium Operations Under a Contingency Notification

(1) Any person who conducts or authorizes the conducting of either a large operation which is subject to the requirements of this rule, or a medium operation under a contingency notification as set forth in subdivision (e), shall either:

(A) take the actions specified in Tables 1 and 2 for each applicable source of fugitive dust within the property lines and shall:

(i) notify the Executive Officer not more than 7 days after qualifying as a large operation or as a medium operation under a contingency notification;

(ii) include, as part of the notification, the items specified in subparagraphs (f)(3)(A) and (f)(3)(B);

(iii) maintain daily records to document the specific actions taken;

(iv) maintain such records for a period of not less than 6 months; and

(v) make such records available to the Executive Officer upon request; or

(B) obtain an approved fugitive dust emissions control plan (plan).

(2) Any person subject to paragraph (f)(1) who elects to obtain an approved fugitive dust emission control plan must submit the plan to the Executive Officer no later than 30 days after the activity becomes a large operation.

- (3) Any plan prepared pursuant to subparagraph (f)(1)(B) shall include:
- (A) The name(s), address(es), and phone number(s) of the person(s) responsible for the preparation, submittal, and implementation of the plan;
 - (B) A description of the operation(s), including a map depicting the location of the site;
 - (C) A listing of all sources of fugitive dust emissions within the property lines;
 - (D) A description of the required control measures as applied to each of the sources identified in subparagraph (f)(3)(C). The description must be sufficiently detailed to demonstrate that the applicable best available control measures or reasonably available control measures will be utilized and/or installed during all periods of active operations.
- (4) In the event that there are special technical (e.g., non-economic) circumstances, including safety, which prevent the use of at least one of the required control measure for any of the sources identified in subparagraph (f)(3)(C), a justification statement must be provided in lieu of the description required in subparagraph (f)(3)(D). The justification statement must explain the reason(s) why the required control measures cannot be implemented.
- (5) Within 30 calendar days of the receipt of a plan submitted pursuant to subparagraph (f)(1)(B), the Executive Officer will either approve, conditionally approve, or disapprove the plan, in writing. For a plan to be approved or conditionally approved, three conditions must be satisfied:
- (A) All sources of fugitive dust emissions must be identified (e.g., earth-moving, storage piles, vehicular traffic on unpaved roads, etc.).
 - (B) For each source identified, at least one of the required control measures must be implemented, or an acceptable justification statement pursuant to paragraph (f)(4) must be provided; and
 - (C) If, after implementation of the required control measures, visible dust emissions are crossing the property line(s), then high wind measures (e.g., increased watering) must be specified for immediate implementation.
- (6) Conditional approval will be made if conditions are met, but the stated measures do not satisfactorily conform to the guidance contained in the applicable Rule 403 Implementation Handbook. If a plan is conditionally approved, the conditions necessary to modify the plan will be provided in writing to the person(s) identified in subparagraph (f)(3)(A). Such modifications must be incorporated into the plan within 30 days of the receipt of the notice of conditional approval, or the plan shall be disapproved. A letter to the Executive Officer stating that such modifications will

be incorporated into the plan shall be deemed sufficient to result in approval of the plan.

(7) If a plan is disapproved by the Executive Officer:

(A) The reasons for disapproval shall be given to the applicant in writing.

(B) Within 7 days of the receipt of a notice of a disapproved plan, the applicant shall comply with the actions specified in Tables 1 and 2 for each applicable source of fugitive dust within the property lines.

(C) The applicant may resubmit a plan at any time after receiving a disapproval notification, but will not be relieved of complying with subparagraph (f)(7)(B) until such time as the plan has been approved.

(8) Failure to comply with any of the provisions in an approved or conditionally approved plan shall be a violation of subdivision (f).

(9) Any approved plan shall be valid for a period of one year from the date of approval or conditional approval of the plan. Plans must be resubmitted annually, at least 60 days prior to the expiration date, or the plan shall become disapproved as of the expiration date. If all fugitive dust sources and corresponding control measures or special circumstances remain identical to those identified in the previously approved plan, the resubmittal may contain a simple statement of no-change. Otherwise, a resubmittal must contain all the items specified in subparagraphs (f)(3) (A through D).

(10) Any person subject to the requirements of paragraph (f)(1) who no longer exceeds, and does not expect to exceed for a period of at least one year, the criteria for a large operation or a medium operation under a contingency notification may request a reclassification as a non-large operation not subject to subparagraph (f). To obtain this reclassification, a person must submit a request in writing to the Executive Officer specifying the conditions which have taken place to reduce the disturbed surface area and/or the earth-moving or throughput conditions to levels below the criteria for large operations. A person must further indicate that the criteria for large operations are not expected to be exceeded during the subsequent 12-month period. The Executive Officer shall either approve or disapprove the reclassification within 60 days from receipt of the reclassification request. The Executive Officer will disapprove the request if the indicated changes can not be verified to be below the criteria for large operations or a medium operation under a contingency notification. If approved, the person shall be relieved of all requirements under subdivision (f). Any person so reclassified would again be subject to the requirements of subdivision (f) if at any time subsequent to the reclassification the criteria for large operations or a medium operation under a contingency notification are met.

(11) A person responsible for more than one operation subject to subparagraph (f) at non-contiguous sites may submit one plan covering multiple sites provided that:

(A) the contents of the plan apply similarly to all sites; and

(B) specific information is provided for each site, including, map of site location, address, description of operations, and a listing of all sources of fugitive dust emissions within the property lines.

(g) Compliance Schedule

All the newly amended provisions of this rule shall become effective upon adoption of this Rule Amendment. Pursuant to subdivision (f), any fugitive dust emission control plan which has been approved or conditionally approved prior to the date of adoption of these amendments shall remain in effect and the plan approval date and annual resubmittal date shall remain unchanged. If any changes to such plans are necessary as a result of these amendments, such changes shall not be required until the annual resubmittal date, pursuant to paragraph (f)(9).

(h) Exemptions

(1) The provisions of this rule shall not apply to:

(A) Agricultural operations outside the boundaries of the South Coast Air Basin, agricultural operations directly related to the raising of fowls or animals, and agricultural operations conducted within the boundaries of the South Coast Air Basin provided that the combined disturbed surface area within one continuous property line and not separated by a paved public road is 10 acres or less.

(B) Agricultural operations within the South Coast Air Basin, until June 30, 1999, whose combined disturbed surface area includes more than 10 acres. All provisions of this Rule shall become applicable to agricultural operations exceeding 10 acres beginning July 1, 1999, excluding those listed in (h)(1)(A), unless the person responsible for such operations voluntarily implements the conservation practices contained in the most recent Rule 403 Agricultural Handbook, now or hereafter adopted by the Governing Board. The person responsible for such operations must complete and maintain the self-monitoring form documenting sufficient conservation practices, as described in the Rule 403 Agricultural Handbook, and must make it available to the Executive Officer upon request.

(C) Any disturbed surface area less than one-half (1/2) acre on property zoned for residential uses.

(D) Active operations conducted during emergency life-threatening situations, or in conjunction with any officially declared disaster or state of emergency.

(E) Active operations conducted by essential service utilities to provide electricity, natural gas, telephone, water and sewer during periods of service outages and emergency disruptions.

(F) Any contractor subsequent to the time the contract ends, provided that such contractor implemented the required control measures during the contractual period.

(G) Any grading contractor, for a phase of active operations, subsequent to the contractual completion of that phase of earth-moving activities, provided that the required control measures have been implemented during the entire phase of earth-moving activities, through and including five days after the final grading inspection.

(H) Weed abatement operations ordered by a county agricultural commissioner or any state, county, or municipal fire department, provided that:

(i) mowing, cutting or other similar process is used which maintains weed stubble at least three inches above the soil; or

(ii) any disking or similar operation which cuts into and disturbs the soil is used and meets the following conditions:

[a] A determination is made by the issuing agency of the weed abatement order that, due to fire hazard conditions, rocks, or other physical obstructions, it is not practical to meet the conditions specified in clause (h)(1)(H)(i); and

[b] Such determination is made in writing and provided to the person conducting the weed abatement operation prior to beginning such activity; and

[c] Such written determination is provided to the Executive Officer upon request from the person conducting the weed abatement operation.

(Note: The provisions of clause (h)(1)(H)(ii) do not exempt the owner of any property from controlling fugitive dust emissions emanating from disturbed surface areas which have been created as a result of the weed abatement actions.)

(I) sandblasting operations.

(2) The provisions of paragraphs (d)(1) and (d)(4) shall not apply:

(A) When wind gusts exceed 25 miles per hour, provided that:

(i) The required control measures for high wind conditions are

implemented for each applicable fugitive dust source type, as specified in Table 1, and;

(ii) Records are maintained in accordance with clauses (f)(1)(A)(iii), (f)(1)(A)(iv) and (f)(1)(A)(v); and

(iii) In the event there are technical (e.g., non-economic) reasons, including safety, why any of the required control measures in Table 1 cannot be implemented for one or more fugitive dust source categories, a person submits a "High Wind Fugitive Dust Control Plan" (HW-Plan). The HW-Plan must further provide an alternative measure of fugitive dust control, if technically feasible. Such plan will be subject to the same approval conditions as specified in subparagraphs (f)(5) and (f)(6).

(B) To unpaved roads, provided such roads:

(i) are used solely for the maintenance of wind-generating equipment; or

(ii) are unpaved public alleys as defined in Rule 1186; or

(iii) meet all of the following criteria:

[a] are less than 50 feet in width at all points along the road;

[b] are within 25 feet of the property line; and

[c] have a traffic volume less than 20 vehicle-trips per day.

(C) To any active operation, open storage pile, or disturbed surface area for which necessary fugitive dust preventive or mitigative actions are in conflict with the federal Endangered Species Act.

(D) To non-routine or emergency maintenance of flood control channels and water spreading basins.

(3) The provisions of paragraphs (d)(1), (d)(2), and (d)(4) shall not apply to:

(A) Blasting operations which have been permitted by the California Division of Industrial Safety; and

(B) Motion picture, television, and video production activities when dust emissions are required for visual effects. In order to obtain this exemption, the Executive Officer must receive notification in writing at least 72 hours in advance of any such activity and no nuisance results from such activity.

(4) The provisions of paragraph (d)(4) shall not apply if the dust control actions, as specified in Table 2, are implemented on a routine basis for each applicable fugitive dust source type. To qualify for this exemption, a person must:

(A) maintain records to document the dates of active operations, all applicable fugitive dust source types, and the actions taken consistent with Table 2;

(B) retain such records for a period of at least six months; and

(C) make such records available to the Executive Officer upon request.

(5) The provisions of paragraph (d)(5) shall not apply to earth coverings of public paved roadways where such coverings are approved by a local government agency for the protection of the roadway, and where such coverings are used as roadway crossings for haul vehicles.

(6) The provisions of subdivision (f) shall not apply to:

(A) officially-designated public parks and recreational areas, including national parks, national monuments, national forests, state parks, state recreational areas, and county regional parks;

(B) any construction and/or earth-moving activity in which the completion date is expected to be less than 60 days after the beginning date. To qualify for this exemption, a person must:

(i) notify the Executive Officer not more than 7 days after qualifying as a large operation or a medium operation under a contingency notification;

(ii) include, as part of the notification, the items specified in subparagraphs (f)(3)(A) and (f)(3)(B); and

(iii) take the actions specified in Tables 1 and 2 at such time as the construction and/or earth-moving activities extend more than 60 days after qualifying as a large operation or a medium operation under a contingency notification.

(C) any large operation or a medium operation under a contingency notification which is required to submit a dust control plan to any city or county government which has adopted a District-approved dust control ordinance. To qualify for this exemption, a person must submit a copy of the city- or county-approved dust control plan to the Executive Officer within 30 days of the effective date of this rule or within 30 days of receiving approval from the city or county government, whichever is later.

(D) any large operation or a medium operation under a contingency notification subject to Rule 1158, which has an approved dust control plan pursuant to Rule 1158, provided that all sources of fugitive dust are included in the Rule 1158 plan.

(i) Fees

(1) Any person subject to a plan submittal pursuant to subparagraph (f)(1)(B) or clause (h)(2)(A)(iii) or subparagraph (h)(1)(B) shall be assessed applicable filing and evaluation fees pursuant to Rule 306. Any person who simultaneously submits a plan pursuant to subparagraph (f)(1)(B) and clause (h)(2)(A)(iii) shall, for the purpose of this rule, be deemed to submit one plan.

(2) The submittal of an annual statement of no-change, pursuant to paragraph (f)(9), shall not be considered as an annual review, and therefore shall not be subject to annual review fees, pursuant to Rule 306.

(3) The owner/operator of any facility for which the Executive Officer conducts upwind/downwind monitoring for PM_{10} pursuant to paragraph (d)(4) shall be assessed applicable Ambient Air Analysis Fees pursuant to Rule 304.1. Applicable fees shall be waived for any facility which is exempted from paragraph (d)(4) or meets the requirements of paragraph (d)(4).

TABLE 1
BEST [REASONABLY] AVAILABLE CONTROL MEASURES FOR HIGH WIND CONDITIONS

FUGITIVE DUST SOURCE CATEGORY		CONTROL MEASURES
Earth-moving	(1A)	Cease all active operations; OR
	(2A)	Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B)	On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR
	(1B)	Apply chemical stabilizers prior to wind event; OR
	(2B)	Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR
	(3B)	Take the actions specified in Table 2, Item (3c); OR
	(4B)	Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed

		surface areas.
Unpaved roads	(1C)	Apply chemical stabilizers prior to wind event; OR
	(2C)	Apply water twice [once] per hour during active operation; OR
	(3C)	Stop all vehicular traffic.
Open storage piles	(1D)	Apply water twice [once] per hour; OR
	(2D)	Install temporary coverings.
Paved road track-out	(1E)	Cover all haul vehicles; OR
	(2E)	Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 1 may be used.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2
DUST CONTROL ACTIONS FOR EXEMPTION FROM PARAGRAPH (d)
(4)

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other

areas:	equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.
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* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Earth-moving: Construction cut areas and mining operations:	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 [70] percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c)	Apply chemical stabilizers within five working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 [70] percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR

	(3b)	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 [30] days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 2 (Continued)

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations [3 times per normal 8 hour work day]; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 [70] percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
All Categories	(6a)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 2 may be used.

* Measures in [brackets] are reasonably available control measures and only apply to sources not within the South Coast Air Basin.

TABLE 3
TRACK-OUT CONTROL OPTIONS
PARAGRAPH (d)(5)(B)

CONTROL OPTIONS

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 3 may be used.



South Coast Air Quality Management District

(Adopted August 5, 1988)(Amended July 14, 1995)(Amended May 11, 2001)

RULE 1166. VOLATILE ORGANIC COMPOUND EMISSIONS FROM DECONTAMINATION OF SOIL

a) Applicability

This rule sets requirements to control the emission of Volatile Organic Compounds (VOC) from excavating, grading, handling and treating VOC-contaminated soil as a result of leakage from storage or transfer operations, accidental spillage, or other deposition.

(b) Definitions

- (1) EXCAVATION is the process of digging out and removing materials, including any material necessary to that process such as the digging out and removal of asphalt or concrete necessary to expose, dig out and remove known VOC contaminated soil.
- (2) GRADING is the process of leveling off to produce a smooth surface including the removal of any material necessary to that process such as asphalt and concrete necessary to expose known VOC contaminated soil.
- (3) Soil decontamination Measure is any process approved by the Executive Officer to remediate, destroy, remove, or encapsulate VOC and VOC-contaminated soil.
- (4) Underground Storage Tank means any one or combination of tanks, including pipes connected thereto, which is used for the storage of organic liquid which is more than 50% beneath the surface of the ground.
- (5) VOC contaminated Soil is a soil which registers a concentration of 50 ppm or greater of Volatile Organic Compounds as measured before suppression materials have been applied and at a distance of no more than three inches from the surface of the excavated soil with an organic vapor analyzer calibrated with hexane.
- (6) VOC contaminated Soil Mitigation PLAN is a plan to minimize VOC emissions to the atmosphere during excavation and any subsequent handling of VOC-contaminated soil.
- (7) Volatile Organic Compound (VOC) is any volatile compound of carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds. Exempt compounds are defined in Rule 102—Definition Of

Terms

- (8) VOLATILE ORGANIC MATERIALS include gasoline, diesel, crude oil, lubricant, waste oil, adhesive, paint, stain, solvent, resin, monomer, and/or any other material containing VOC.

(c) Requirements

- (1) A person excavating an underground storage tank and/or transfer piping storing or previously storing VOC materials, or excavating or grading soil containing VOC materials shall:

- (A) Apply for, obtain and operate pursuant to a mitigation plan approved by the Executive Officer prior to commencement of excavation or handling. The mitigation plan general requirement and application requirements are found in Attachment A to this rule. A copy of the approved plan must be on site during the entire excavation period.
- (B) Notify the Executive Officer at least 24 hours prior to excavation using a form approved by the Executive Officer which is fully completed.

If the excavation does not commence on start date, renotification is required.

An alternative notification procedure may be authorized for multiple excavations within a single facility, with prior written approval from the Executive Officer.

- (C) Monitor for VOC contamination pursuant to subdivision (e), at least once every 15 minutes commencing at the beginning of excavation or grading and record all VOC concentration readings in a format approved by the Executive Officer; and
- (D) When VOC-contaminated soil is detected during excavation or grading:
- (i) Implement the approved mitigation plan (Attachment A).
 - (ii) Notify the Executive Officer within 24 hours of detection of VOC-contaminated soil.
 - (iii) Monitor and record VOC concentration readings as prescribed in the plan. Monitoring records must be kept available on site.
 - (iv) Keep calibration records for all monitoring instruments available on site.

- (2) A person handling VOC-contaminated soil at or from an excavation or grading site shall:

- (A) Segregate VOC-contaminated stockpiles from non-VOC contaminated stockpiles such that mixing of the stockpiles does not take place.
 - (B) Spray VOC-contaminated soil stockpiles with water and/or approved vapor suppressant and cover them with plastic sheeting for all periods of inactivity lasting more than one hour.
 - (C) Conduct a daily visual inspection of all covered VOC contaminated soil stockpiles to ensure the integrity of the plastic covered surfaces. A daily inspection record must be maintained on site.
 - (D) Comply with the provisions in subparagraph (c) (1)(A) and clause (c)(1)(D)(i).
 - (E) Maintain a record of the identification and business addresses of the generator, transporter and storage/treatment facilities. Such record shall be signed by each party at the time custody is transferred.
 - (F) Treat or remove contaminated soil from an excavation or grading site within 30 days from the time of excavation.
- (3) If the VOC concentration in the excavated soil is measured at greater than 1000 ppm, spray the soil with water or vapor suppressant and:
- (A) As soon as possible, but not more than 15 minutes, place the soil in sealed containers, or
 - (B) As soon as possible, but not more than 15 minutes, load into trucks, moisten with additional water, cover and transport off site, or
 - (C) Implement other alternative storage methods approved in writing by the Executive Officer.
- (4) A person treating VOC-contaminated soil shall:
- (A) Obtain a permit to construct and operate treatment equipment, as applicable, from the Executive Officer, and
 - (B) Implement VOC-contaminated soil decontamination measures, as approved by the Executive Officer in writing, which result in Best Available Control Technology applied during all segments, and which include, but are not limited to, at least one of the following:
 - (i) Installation and operation of an underground VOC collection system and a disposal system prior to excavation.
 - (ii) Collection and disposal of the VOC from the excavated soil on-site using equipment approved by the Executive

Officer.

- (iii) Any equivalent VOC-contaminated soil control measure previously approved in writing by the Executive Officer.
- (5) A person shall not engage in or allow any on-site or off-site spreading, grading or screening of VOC-contaminated soil, which results in uncontrolled evaporation of VOC to the atmosphere.
- (6) Loading trucks for contaminated soil must meet the following:
 - (A) The truck and trailer shall be adequately tarped prior to leaving the site; no excavated materials shall extend above the sides or rear of the truck or trailer to prevent soil spillage during transport, and
 - (B) The exterior of the truck, trailer and tires shall be cleaned off prior to the truck leaving the site.

(d) Exemptions

- (1) The provisions of this rule shall not apply to the following:
 - (A) Excavation, handling, and treating of less than one (1) cubic yard of contaminated soil.
 - (B) Removal of soil for sampling purposes.
 - (C) Accidental spillage of five (5) gallons or less of VOC containing material.
- (2) The provisions of paragraphs (c)(1) and (c)(2) shall not apply to soil excavation or handling as a result of an emergency as declared by an authorized health officer, agricultural commissioner, fire protection officer, or other authorized agency officer. Whenever possible, the Executive Officer shall be notified by telephone prior to commencing such excavation. The Executive Officer shall be notified in writing no later than 48 hours following such excavation. Written notification shall include written emergency declaration from the authorized officer.

(e) Test Methods

- (1) A person shall measure excavated soils for volatile organic compounds to determine contamination by:
 - (A) Using an organic vapor analyzer calibrated with hexane, complying with 40 CFR Part 60 Appendix A, EPA Reference Method 21 Section 3 or any equivalent method with prior approval in writing by the Executive Officer. If other calibrating gases are used, then the measured readings shall be correlated to and expressed as hexane.
 - (B) Placing the probe inlet at a distance of no more than three inches from the surface of the excavated soil and while slowly moving

the probe across the soil surface, observe the instrument readout. If an increased meter reading is observed, continue to sample the excavated soil until the maximum meter reading is obtained. Leave the probe inlet at this maximum reading location for approximately double the instrument response time. If the maximum observed meter reading is greater than the 50 ppm standard in the regulation, record and report the results.

- (2) The presence of VOC in stored or spillage materials shall be determined by SCAQMD Method 313 [Determination of Presence of Volatile Organic Compounds (VOC) in Headspace] and/or Method 304 (Determination of Volatile Organic Compounds in Various Materials) contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual.

(f) Enforcement

- (1) Violation of any provision of this rule or the violation of the approved mitigation plan shall be grounds for the Executive Officer to amend or revoke the mitigation plan, in addition to penalties provided by the Health & Safety Code.
- (2) If the owner or operator is served with a Notice of Violation for creating a public nuisance, the owner or operator shall suspend operation until the public nuisance is mitigated to the satisfaction of the Executive Officer.

ATTACHMENT A

GENERAL MITIGATION PLANS REQUIREMENTS

VOC Contaminated Soil Mitigation Plans shall be written to minimize VOC emissions to the atmosphere during excavation, grading, handling and treatment of VOC contaminated soil. VOC Contaminated Soil Mitigation Plans shall consist of three types: Various Locations, Site Specific and Facility Treatment.

- (1) General Requirements
 - (A) A plan is not transferable.
 - (B) A person responsible for the excavation, grading or handling of VOC contaminated soil must be completely familiar with the plan and must adhere to the plan requirement. The Executive Officer may require that the plan be signed by the owner and/or operator.
 - (C) A plan may be amended upon renewal.
 - (D) Permission to excavate, grade or handle VOC contaminated soil may be withdrawn by the District upon a finding by the Executive Officer that the excavation, grading or handling of the VOC

contaminated soil is causing a public nuisance or violating other AQMD rules or regulations

(2) Various Location Plans:

- (A) Shall be limited to the excavation of 2000 cubic yards or less of VOC contaminated soil in any consecutive 12 month period at the same site.
- (B) Shall not be used in conjunction with any other various location plan at the same site within a consecutive 12-month period.
- (C) Shall expire after one year from issuance unless renewed.
- (D) Shall not be issued for nor used for operations that involve grading, soil treatment or remediation, or landfills.

(3) Site Specific Plans:

- (A) Shall be for excavation of greater than 2000 cubic yards of VOC contaminated soil.
- (B) Shall be issued for specific excavation or grading locations for a period not to exceed two years.
- (C) Shall not be renewable.

(4) Facility Treatment Plans:

- (A) Shall be issued for a treatment facility at a permanent location.
- (B) Shall expire after one year from issuance unless renewed.

(5) Applications for Site Specific Plans shall contain as a minimum:

- (A) Reasons for excavation or grading.
- (B) Cause of VOC soil contamination and history of the site.
- (C) Description of tanks or piping associated with the soil contamination.
- (D) An estimate of the amount of contaminated soil.
- (E) The operating schedule for excavation and removal.
- (F) Description of how the excavation or grading will be conducted.
- (G) Description of mitigation measures for dust, odors and VOC.
- (H) Details of disposal of VOC contaminated soil, including the ultimate receptor.

- (I) Description of monitoring equipment and techniques.
 - (J) A map showing the facility layout, property line, and surrounding area up to 2500 feet away, and including any schools, residential areas or other sensitive receptors such as hospitals or locations where children or elderly people live or work.
 - (K) Designation of a person who can conduct a site inspection with the Executive Officer prior to issuance of the plan.
- (6) Applications for Facility Treatment Plans shall at a minimum:
- (A) Include a list of all AQMD permits to construct or operate which have been issued for that treatment and control equipment.
 - (B) Provide for the implementation of VOC-contaminated soil decontamination measures, as approved by the Executive Officer in writing, which result in Best Available Control Technology during all operations.
 - (C) Provide a map showing the facility layout including the location of all proposed VOC and non-VOC contaminated soil stockpiles.
 - (D) Specify the total amount of VOC contaminated soil proposed to be stockpiled on site.
 - (E) Provide for VOC contaminated soil stockpiles to be kept moist with water or suppressant and be covered to prevent fugitive emissions.
 - (F) Provide for VOC contaminated soil stockpiles to be segregated from non-VOC contaminated soil stockpiles.
 - (G) Provide for maintenance of records for stockpiles according to the source name, address and dates of reception.
 - (H) Provide for records of the generator, transporter and storage/treatment facilities and indicate their identification and business addresses. Such records shall be signed by each party at the time custody is transferred.
 - (I) Provide a map showing the facility layout, property line, and surrounding area up to 2500 feet away, and including any schools, residential area or other sensitive receptors such as hospitals, or locations where children or elderly people live or work.
 - (J) Designation of a person who can conduct a site inspection with the Executive Officer prior to issuance of the plan.
 - (K) Specify the operating schedule and maximum amount of VOC-contaminated soil proposed to be remediated on a daily basis.
- (7) In approving a plan, the Executive Officer require reasonable conditions

deemed necessary to ensure the operations comply with the plan and AQMD rules. The conditions may include, but shall not be limited to, procedures for ensuring responsibility for the implementation of the plan, accessibility to the site for AQMD staff, notification of actions required by the plan, identification of emission receptors, monitoring and testing, suppression and covering of stockpiles, prevention of public nuisance from VOC or dust emissions, prevention of fugitive emissions of VOC contaminated soil, loading of truck trailers, and disposal and treatment.

- (8) In approving a plan, the Executive Officer may require any records deemed necessary to be maintained by the operator to demonstrate compliance with the plan. Such records shall be retained for at least 2 years and be made available to the Executive officer upon request.

AQMD Home Page

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South Coast Air Quality Management District

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SITE SPECIFIC VOC-CONTAMINATED SOIL MITIGATION PLAN PACKAGE

This application package contains:

1. General applicability information for VOC contaminated soil mitigation plan
2. Forms for Submittal with Instructions
 - a. 400P
 - b. 400P-1
 - c. Applicant's Agreement
 - d. 400-CEQA
3. Sample Plan
4. Rule 1166 Soil Monitoring Record Form
5. Rule 1166 Notification Form

Revised July 2001

INTRODUCTION

In accordance with the requirements of AQMD Rule 1166 - Volatile Organic Compound Emissions from Decontamination of Soil, an approved Mitigation Plan is required prior to commencement of any of the following activities:

1. Excavation of an underground storage tank or piping which has stored VOC
2. Excavation, handling, or storage of VOC contaminated soil (soil which registers >50 ppm or greater using an OVA monitor calibrated with hexane)

This package was developed to provide the applicant with the materials necessary to prepare a mitigation plan application for the excavation and handling VOC-contaminated soil. This package includes:

1. Form 400P - Application for Plans,
2. Business Type Codes,
3. Form SM-1A - Rule 1166 VOC-Contaminated Soil Mitigation Plan Information to Accompany Application Form 400-P, and
4. A sample "Site Specific" plan with typical plan conditions. This is included as a sample only, actual conditions may vary from those presented in this example.

MAILING ADDRESS:

**SOUTH COAST AIR QUALITY
MANAGEMENT DISTRICT
P.O. BOX 4944
DIAMOND BAR, CA 91765-0944**

INSTRUCTIONS - SITE SPECIFIC

The Site Specific Plan is designed for activities involving a single site. Typically, these activities are larger in scope (>2,000 yd³) or possess unique qualities that require a "tailor made" plan. A Site Specific Plan is required for:

1. Activities involving quantities of VOC-contaminated soil exceeding 2,000 cubic yards,
2. Uses in conjunction with any on-site treatment/remedial action, or
3. Situations where the standard conditions contained within the Various Locations Plan are not appropriate.

To apply for a Site Specific Mitigation Plan:

1. Complete Form 400-P,
2. Complete Form SM-1A, mark the "Site Specific" box and provide any additional information as required, and
3. Submit Form 400-CEQA.
4. Submit both forms, with the plan submittal fee of \$378.82, to the SCAQMD at the address above.

PLAN FEES

In accordance with SCAQMD Rule 306, all applicable fees are required at the time of filing. The fees are as follows:

Plan Filing Fee

The plan filing fee shall be \$87.40.

Plan Evaluation Fee

In addition to the payment of the filing fee, an initial payment for plan evaluation fees

shall be paid at the time of submittal. Plan evaluation fees shall be at an amount equal to the total actual and reasonable time incurred by the SCAQMD for evaluation of a plan, assessed at the rate of \$87.40 per person per hour or prorated portion thereof.

Typically, the time required to evaluate a Various Locations is one (1) hour. Hence, the plan evaluation fee for a Various Locations Plan is limited to \$87.40.

The time required to evaluate a Site Specific Plan varies and will depend on the complexity of the plan. Therefore, an initial plan evaluation fee of \$291.42 shall be paid at the time of submittal for a "site specific" plan. The adjustment to the initial plan evaluation fee will be determined at the time a plan is approved or denied, and notification of an amount due or refund will be made.

Total fees to be included with the completed application package is:

Site Specific Mitigation Plan: \$378.82

QUESTIONS

Rule 1166 questions (909) 396-2326
Mitigation plans

Soil excavation requirements

Fax #: (909) 396-3342

Public Information (909) 396-3600

Variances from SCAQMD Rules and
Permits conditions (909) 396-2468

Small Business
Assistance (800) 396-3235

To report air quality
complaints (800) CUT-SMOG

APPLICATION FOR PLANS

FORM 400P

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

COMPANY INFORMATION

FOR INSTRUCTIONS SEE REVERSE SIDE

LEGAL NAME OF APPLICANT:	____ I.R.S. OR ____ S.S. NO.:
PLAN TO BE ISSUED TO: (SEE INSTRUCTIONS)	
BUSINESS MAILING ADDRESS:	

FACILITY INFORMATION

FACILITY NAME	FACILITY ID NO.:
EQUIPMENT/FACILITY LOCATION: (FOR VARIOUS LOCATIONS PLANS ENTER VARIOUS LOCATIONS)	
TYPE OF BUSINESS:	BUSINESS TYPE CODE: (SEE INSTRUCTIONS)
CONTACT PERSON AND TITLE:	CONTACT TELEPHONE NO/FAX NO: () ()

EQUIPMENT INFORMATION

APPLICATION HEREBY SUBMITTED FOR:			
SOIL MITIGATION PLAN			
RULE NUMBER WHICH THIS APPLICATION APPLIES TO:		RULE 1166	
TYPE OF PLAN	COMPLIANCE PLAN	[X]	
APPLICATION:	EXCAVATION PLAN	[X]	
IF THIS APPLICATION IS ASSOCIATED WITH CERTAIN DISTRICT APPLICATION(S)/PERMIT(S), ENTER APPLICATION/PERMIT NUMBER(S):			
FOR THIS PROJECT, HAS A CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) DOCUMENT BEEN REQUIRED BY ANOTHER GOVERNMENTAL AGENCY? NO [] YES [] IF YES, ENTER NAME OF AGENCY:			
DO YOU CLAIM CONFIDENTIALITY OF DATA? (SEE INSTRUCTIONS) YES [] NO []			
OPERATING SCHEDULE: (Site Specific Plans Only)			
	HOURS/DAY	DAYS/WEEK	WEEKS/YEAR
MAXIMUM			
AVERAGE			

SIGNATURE

I HEREBY CERTIFY, UNDER PENALTY OF PERJURY, THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION ARE TRUE AND CORRECT		
SIGNATURE OF RESPONSIBLE MEMBER OR ORGANIZATION		DATE
TYPE OR PRINT NAME OF SIGNER:	TITLE OF SIGNER	TELEPHONE NO.: ()

SCAQMD USE ONLY

APPLICATION NUMBER	EQUIP CAT NO.	ENGR A R DATE INITIAL	ENGR A R DATE INITIAL
ASSIGNMENT UNIT ENG	FEE SCHEDULE \$	CHECK NO.	AMOUNT
VALIDATION		ENF SEC	

FORM 400P APPLICATION INSTRUCTIONS

COMPANY INFORMATION	
LEGAL NAME OF APPLICANT: Please identify the legal entity that operates the equipment.	
I.R.S. OR S.S. NO.: This information is used for identification purposes. Please enter the Internal Revenue Service (I.R.S.) or Social Security (S.S.) number of the applicant and check the appropriate box.	
PLAN TO BE ISSUED TO: Special format is used to identify both the legal entity and the business name. Please pattern your entry after one of the following examples:	
Personal Name:	John C. King
Personal Name with DBA:	ABC Store, John C. King DBA
Partnership:	John C. King, Jim Day, and Ann Smith
Partnership	ABC Store, J. King J. Day A. Smith DBA
Corporation	ABC Corporation
Corporation with Division:	ABC Corporation, Office Products Division
Corporation with DBA:	ABC Corporation, ABC Trucking Co. DBA
Governmental Agency:	Any City, Public Works Dept.
School:	John Muir High School
Colleges and Universities:	University of California, Los Angeles, Biochemistry Dept.
BUSINESS MAILING ADDRESS: Please identify the address where all business correspondence is to be mailed.	

FACILITY INFORMATION
FACILITY NAME: For identification purposes, please enter the name of the subject facility if you have more than one facility.
FACILITY I.D. NO.: If your facility has been issued an I.D. number by the District, please enter it in the space provided. Otherwise, leave this blank. An I.D. number will be assigned when the application is submitted.

EQUIPMENT/FACILITY LOCATION: Please identify the address where the equipment or facility will be located. If no street address is available, please provide a location description and zip code. For equipment to be operated at <i>various locations</i> , state "various locations in SCAQMD" and the initial operating location.
TYPE OF BUSINESS: This information is used by the District for planning and statistical purposes. Please state the type of business you conduct in this facility (e.g. refinery, paint manufacturing, dry cleaner, restaurant, etc.).
BUSINESS TYPE CODE AT THIS FACILITY: This information is used by the District for planning and statistical purposes. Using the provided list of business codes, please enter the code which best describes your business activity at this facility.
CONTACT PERSON, TITLE, PHONE NUMBER & FAX NUMBER: Please identify the person name and title whom would be contacted regarding this application; also include the contact telephone number for this person.

EQUIPMENT INFORMATION
CALIFORNIA ENVIRONMENTAL QUALITY ACT: A California Environmental Quality Act (CEQA) document (e.g., environmental impact report, negative declaration) is required for any project which results in significant effect on the environment. If such a document has been required by another governmental agency, please enter the name of that agency. A copy of this document is also required before the application can be deemed complete. Therefore, please submit a copy of the approved document.
CONFIDENTIALITY: District records are subject to the California Public Records Act. To claim confidentiality of information submitted with this application, check "yes." Please be sure that all submitted information which you wish to be kept confidential is clearly marked as such. Please also state the reason(s) for claiming confidentiality. Examples of acceptable reasons are trade secrets and production data. Please note that state law prevents emissions data and permit documents from being kept secret.

SUPPLEMENTAL INFORMATION

In addition to this application form, please submit supporting documents containing information required by the specific rule under which the application is filed. For Rule 1146, please complete Form 1146AL T.

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
SUPPLEMENTAL
RULE 1166 VOC-CONTAMINATED SOIL MITIGATION PLAN INFORMATION
TO ACCOMPANY APPLICATION FORM 400-P-1**

LEGAL NAME OF APPLICANT: _____

TYPE OF BUSINESS: _____

TYPE OF PLAN: ☐ VARIOUS LOCATIONS ☐ SITE SPECIFIC (PLEASE COMPLETE 1 THROUGH 10 BELOW)

FOR SITE SPECIFIC PLAN ONLY

REASON FOR EXCAVATION:

- ☐ TANK REPLACEMENT/REPAIR ☐ PIPING REPLACEMENT/REPAIR ☐ REMOVAL/TREATMENT OF SOIL
☐ OTHER _____

CAUSE OF VOC-CONTAMINATION:

- ☐ UNDERGROUND TANK LEAKS ☐ UNDERGROUND PIPING LEAKS ☐ SPILLAGE FROM FILLING
☐ OTHER _____

DATA ON TANK(S) TO BE REMOVED (IF ANY)	NUMBER	SIZE (GALLONS)	CONTENTS (UNLEADED GAS, ETC)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

EXTENT OF SOIL CONTAMINATION:

- A VOLUME _____ YD³ (_____ FT W. X _____ FT L. X _____ FT D.)
 B BULK DENSITY OF SOIL _____ TON/YD³ POROSITY _____
 C ☐ SOIL ANALYSIS ATTACHED, IF AVAILABLE (SPECIATED FOR BENZENE, TOLUENE, XYLENE, 1,2-DICHLOROETHANE, TOTAL PETROLEUM HYDROCARBONS, OR OTHER VOC IN MG/KG OR PPM)
 D ☐ VAPOR ANALYSIS ATTACHED, IF AVAILABLE (TOTAL ORGANICS WITH OVA OR OTHER POLLUTANT/INSTRUMENT OVER SOIL OR IN WELLS - INCLUDE POLLUTANT, INSTRUMENT TYPE, READINGS & LOCATION OF MONITORS OR SAMPLES TAKEN)

EXCAVATION OPERATING SCHEDULE:

- A START DATE ____/____/____ STOP DATE ____/____/____ (_____ DAYS)
 B. _____ HR/DAY (_____ AM/PM TO _____ AM/PM) _____ HR/DAY _____ WK/YR

ON THE REVERSE SIDE OF THIS PAGE, PLEASE PROVIDE THE FOLLOWING:

5. DESCRIPTION OF HOW EXCAVATION WILL BE CONDUCTED INCLUDING EXCAVATION, SOIL STORAGE (STOCKPILE, CONTAINER) AND/OR LOADING/TRANSPORT:
 7. MITIGATION MEASURES FOR DUST, ODORS, AND EMISSIONS DURING EXCAVATION, INCLUDING PERIODS OF INACTIVITY SUCH AS LUNCH BREAKS, NIGHTS, WEEKENDS, AND HOLIDAYS:
 8. FACILITY WHERE EXCAVATED VOC-CONTAMINATED SOIL WILL BE TREATED (NAME AND LOCATION). IF TREATING ONSITE, SPECIFY THE TREATMENT METHOD AND ATTACH A CURRENT COPY OF THE AQMD PERMIT TO OPERATE FOR THE TREATMENT EQUIPMENT TO BE USED AT THIS SITE.

VAPOR PHASE MONITORING TO BE CONDUCTED:

POLLUTANT	INSTRUMENT TYPE	LOCATION	DURATION (CONTINUOUS / OTHER FREQUENCY)
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

10. PLEASE ATTACH A FACILITY LAYOUT/PLOT PLAN TO SHOW TANK LOCATIONS (IF ANY), PROPERTY LINE, AND SURROUNDING AREA UP TO 2500 FEET AWAY. IDENTIFY ALL USES IN THE AREA AND HIGHLIGHT SENSITIVE AREAS SUCH AS SCHOOLS, RESIDENTIAL AREAS, RESTAURANTS, AND SHOPPING CENTERS.



APPLICANT'S STATEMENT

I hereby agree that a Standard Permit will be issued only if the following requirements are met:

1. The total quantity of VOC contaminated soil excavated and handled at each site in a calendar year does not exceed 2,000 cubic yards.
2. There is no school located within 1,000 feet of the equipment for which this application is made.
3. The facility will operate the equipment in compliance with all laws, ordinances, regulations and statutes of other governmental agencies.
4. All permit conditions listed in the sample permit are acceptable, and the facility will operate in compliance with these conditions.

I HEREBY CERTIFY UNDER PENALTY OF LAW THAT ALL THE INFORMATION I HAVE PROVIDED ARE TRUE AND CORRECT. I ALSO CERTIFY THAT I HAVE READ AND UNDERSTOOD THE PERMIT CONDITIONS LISTED AND WILL COMPLY WITH ALL THE PERMIT CONDITIONS.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM: _____

NAME (Please print): _____

TITLE OF RESPONSIBLE OFFICIAL OF FIRM: _____

DATE SIGNED: _____

SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE

BUSINESS TYPE CODES

Standard Industrial Classification (SIC) Codes

A	AGRICULTURE, FORESTRY, AND FISHING	2430	Millwork, Plywood & Structural Members	3229	Pressed and blown glass, nec
0100	AGRICULTURAL PRODUCTION-CROPS	2434	Wood kitchen cabinets	3230	Products of Purchased Glass
0200	AGRICULTURAL PRODUCTION-LIVESTOCK	2435	Hardwood veneer and plywood	3240	Cement, Hydraulic
0700	AGRICULTURAL SERVICES	2436	Softwood veneer and plywood	3250	Structural Clay Products
0800	FORESTRY	2439	Structural wood members, nec	3251	Brick and structural clay tile
0900	FISHING, HUNTING, AND TRAPPING	2440	Wood Containers	3253	Ceramic wall and floor tile
4300	U.S. POSTAL SERVICE	2450	Wood Buildings and Mobile Homes	3255	Clay refractories
9900	NONCLASSIFIABLE ESTABLISHMENTS	2490	Miscellaneous Wood Products	3259	Structural clay products, nec
B	MINING	2500	FURNITURE AND FIXTURES	3260	Pottery and Related Products
1000	METAL MINING	2510	Household Furniture	3261	Vitreous plumbing fixtures
1010	Iron Ores	2520	Office Furniture	3262	Vitreous china table & kitchenware
1020	Copper Ores	2521	Wood office furniture	3263	Semivitreous table & kitchenware
1030	Lead and Zinc Ores	2522	Office furniture, except wood	3264	Porcelain electrical supplies
1040	Gold and Silver Ores	2530	Public Building & Related Furniture	3269	Pottery products, nec
1060	Ferrous Alloy Ores, Except Vanadium	2540	Partitions and Fixtures	3270	Concrete, Gypsum, and Plaster Products
1080	Metal Mining Services	2541	Wood partitions and fixtures	3271	Concrete block and brick
1090	Miscellaneous Metal Ores	2542	Partitions and fixtures, except wood	3272	Concrete products, nec
1200	COAL MINING	2590	Miscellaneous Furniture and Fixtures	3273	Ready-mixed concrete
1220	Bituminous Coal and Lignite Mining	2600	PAPER AND ALLIED PRODUCTS	3274	Lime
1230	Anthracite Mining	2610	Pulp Mills	3275	Gypsum products
1240	Coal Mining Services	2620	Paper Mills	3280	Cut Stone and Stone Products
1300	OIL AND GAS EXTRACTION	2630	Paperboard Mills	3290	Misc. Nonmetallic Mineral Products
1310	Crude Petroleum and Natural Gas	2650	Paperboard Containers and Boxes	3291	Abrasive products
1320	Natural Gas Liquids	2670	Misc. Converted Paper Products	3292	Asbestos products
1380	Oil and Gas Field Services	2700	PRINTING AND PUBLISHING	3295	Minerals, ground or treated
1400	NONMETALLIC MINERALS EXCEPT FUELS	2710	Newspapers	3296	Mineral wool
1410	Dimension Stone	2720	Periodicals	3297	Nonclay refractories
1420	Crushed and Broken Stone	2730	Books	3299	Nonmetallic mineral products, nec
1440	Sand and Gravel	2731	Book publishing	3300	PRIMARY METAL INDUSTRIES
1450	Clay, Ceramic, & Refractory Minerals	2732	Book printing	3310	Blast Furnace and Basic Steel Products
1470	Chemical and Fertilizer Minerals	2740	Miscellaneous Publishing	3312	Blast furnaces and steel mills
1474	Potash, soda, and borate minerals	2750	Commercial Printing	3313	Electrometallurgical products
1475	Phosphate rock	2752	Commercial printing, lithographic	3315	Steel wire and related products
1479	Chemical and fertilizer mining, nec	2754	Commercial printing gravure	3316	Cold finishing of steel shapes
1480	Nonmetallic Minerals Services	2759	Commercial printing, nec	3317	Steel pipe and tubes
1490	Miscellaneous Nonmetallic Minerals	2760	Manifold Business Forms	3320	Iron and Steel Foundries
C	CONSTRUCTION	2770	Greeting Cards	3321	Gray and ductile iron foundries
1500	GENERAL BUILDING CONTRACTORS	2780	Blankbooks and Bookbinding	3322	Malleable iron foundries
1520	Residential Building Construction	2790	Printing Trade Services	3324	Steel investment foundries
1530	Operative Builders	2800	CHEMICALS AND ALLIED PRODUCTS	3325	Steel foundries, nec
1540	Nonresidential Building Construction	2810	Industrial Inorganic Chemicals	3330	Primary Nonferrous Metals
1600	HEAVY CONSTRUCTION, EX BUILDING	2812	Alkalies and chlorine	3331	Primary copper
1610	Highway and Street Construction	2813	Industrial gases	3334	Primary aluminum
1620	Heavy Construction, Except Highway	2816	Inorganic pigments	3339	Primary nonferrous metals, nec
1700	SPECIAL TRADE CONTRACTORS	2819	Industrial inorganic chemicals, nec	3340	Secondary Nonferrous Metals
1710	Plumbing, Heating, air-conditioning	2820	Plastics Materials and Synthetics	3350	Nonferrous Rolling and Drawing
1720	Painting and Paper Hanging	2821	Plastics materials and resins	3351	Copper rolling and drawing
1730	Electrical Work	2822	Synthetic rubber	3353	Aluminum sheet, plate, and foil
1740	Masonry, Stonework, and Plastering	2823	Cellulosic manmade fibers	3354	Aluminum extruded products
1750	Carpentry and Floor Work	2824	Organic fibers, noncellulosic	3355	Aluminum rolling and drawing, nec
1760	Roofing, Siding, and Sheet Metal Work	2830	Drugs	3356	Nonferrous rolling and drawing, nec
1770	Concrete Work	2833	Medicinals and botanicals	3357	Nonferrous wiredrawing & insulating
1780	Water Well Drilling	2834	Pharmaceutical preparations	3360	Nonferrous Foundries (Castings)
1790	Misc. Special Trade Contractors	2835	Diagnostic substances	3363	Aluminum die-castings
1793	Glass and glazing work	2836	Biological products exc. diagnostic	3364	Nonferrous die-casting exc. aluminum
1794	Excavation work	2840	Soap, Cleaners, and Toilet Goods	3365	Aluminum foundries
1795	Wrecking and demolition work	2841	Soap and other detergents	3366	Copper foundries
1799	Special trade contractors, nec	2842	Polishes and sanitation goods	3369	Nonferrous foundries, nec
D	MANUFACTURING	2843	Surface active agents	3390	Miscellaneous Primary Metal Products
2000	FOOD AND KINDRED PRODUCTS	2844	Toilet preparations	3398	Metal heat treating
2010	Meat Products	2850	Paints and Allied Products	3399	Primary metal products, nec
2011	Meat packing plants	2860	Industrial Organic Chemicals	3400	FABRICATED METAL PRODUCTS
2013	Sausages and other prepared meats	2861	Gum and wood chemicals	3410	Metal Cans and Shipping Containers
2015	Poultry slaughtering and processing	2865	Cyclic crudes and intermediates	3411	Metal cans
2020	Dairy Products	2869	Industrial organic chemicals, nec	3412	Metal barrels, drums, and pails
2030	Preserved Fruits and Vegetables	2870	Agricultural Chemicals	3420	Cutlery, Handtools, and Hardware
2040	Grain Mill Products	2890	Miscellaneous Chemical Products	3430	Plumbing and Heating, Except Electric
2041	Flour and other grain mill products	2891	Adhesives and sealants	3440	Fabricated Structural Metal Products
2044	Rice milling	2892	Explosives	3441	Fabricated structural metal
2045	Prepared flour mixes and doughs	2893	Printing ink	3442	Metal doors, sash, and trim
2046	Wet corn milling	2895	Carbon black	3443	Fabricated plate work (boiler shops)
2047	Dog and cat food	2899	Chemical preparations, nec	3444	Sheet metalwork
2048	Prepared feeds, nec	2900	PETROLEUM AND COAL PRODUCTS	3446	Architectural metal work
2050	Bakery Products	2910	Petroleum Refining	3448	Prefabricated metal buildings
2051	Bread, cake, and related products	2950	Asphalt Paving and Roofing Materials	3449	Miscellaneous metal work
2052	Cookies and crackers	2951	Asphalt paving mixtures and blocks	3450	Screw Machine Products, Bolts, Etc.
2060	Sugar and Confectionery Products	2952	Asphalt felts and coatings	3460	Metal Forgings and Stampings
2070	Fats and Oils	2990	Misc. Petroleum and Coal Products	3462	Iron and steel forgings
2080	Beverages	2992	Lubricating oils and greases	3463	Nonferrous forgings
2084	Wines, brandy, and brandy spirits	2999	Petroleum and coal products, nec	3465	Automotive stampings
2085	Distilled and blended liquors	3000	RUBBER AND MISC. PLASTICS PRODUCTS	3466	Crowns and closures
2086	Bottled and canned soft drinks	3010	Tires and Inner Tubes	3469	Metal stampings, nec
2087	Flavoring extracts and syrups, nec	3020	Rubber and Plastics Footwear	3470	Metal Services, NEC
2090	Misc. Food and Kindred Products	3050	Hose & Belting & Gaskets & Packing	3471	Plating and polishing
2100	TOBACCO PRODUCTS	3052	Rubber & plastics hose & belting	3479	Metal coating and allied services
2200	TEXTILE MILL PRODUCTS	3053	Gaskets, packing and sealing devices	3480	Ordinance and Accessories, NEC
2210	Broadwoven Fabric Mills, Cotton	3060	Fabricated Rubber Products, NEC	3482	Small arms ammunition
2220	Broadwoven Fabric Mills, Manmade	3061	Mechanical rubber goods	3483	Ammunition, exc. for small arms, nec
2230	Broadwoven Fabric Mills, Wool	3069	Fabricated rubber products, nec	3484	Small arms
2240	Narrow Fabric Mills	3080	Miscellaneous Plastics Products, NEC	3489	Ordinance and accessories, nec
2250	Knitting Mills	3081	Unsupported plastics film & sheet	3490	Misc. Fabricated Metal Products
2260	Textile Finishing, Except Wool	3082	Unsupported plastics profile shapes	3491	Industrial valves
2270	Carpets and Rugs	3083	Laminated plastics plate & sheet	3492	Fluid power valves & hose fittings
2280	Yarn and Thread Mills	3084	Plastics pipe	3493	Steel springs, except wire
2290	Miscellaneous Textile Goods	3085	Plastics bottles	3494	Valves and pipe fittings, nec
2300	APPAREL AND OTHER TEXTILE PRODUCTS	3086	Plastics foam products	3495	Wire springs
2400	LUMBER AND WOOD PRODUCTS	3087	Custom compound purchased resins	3496	Misc. fabricated wire products
2420	Sawmills and Planing Mills	3088	Plastics plumbing fixtures	3497	Metal foil and leaf
		3089	Plastics products, nec	3498	Fabricated pipe and fittings
		3200	STONE, CLAY, AND GLASS PRODUCTS	3499	Fabricated metal products, nec
		3210	Flat Glass	3500	INDUSTRIAL MACHINERY AND EQUIPMENT
		3220	Glass and Glassware Pressed or Blown	3510	Engines and Turbines
		3221	Glass containers	3520	Farm and Garden Machinery

BUSINESS TYPE CODES

Standard Industrial Classification (SIC) Codes

3530	Construction and Related Machinery	4800	COMMUNICATION	7000	HOTELS AND OTHER LODGING PLACES
3531	Construction machinery	4810	Telephone Communication	7600	MISCELLANEOUS REPAIR SERVICES
3532	Mining machinery	4820	Telegraph & Other Communications	7800	MOTION PICTURES
3533	Oil and gas field machinery	4830	Radio and Television Broadcasting	7819	Services allied to motion pictures
3534	Elevators and moving stairways	4840	Cable and Other Pay TV Services	7900	AMUSEMENT & RECREATION SERVICES
3535	Conveyors and conveying equipment	4890	Communication Services, NEC	8100	LEGAL SERVICES
3536	Hoists, cranes, and monorails	4900	ELECTRIC, GAS, AND SANITARY SERVICES	8300	SOCIAL SERVICES
3537	Industrial trucks and tractors	4910	Electric Services	8400	MUSEUMS, BOTANICAL, ZOOLOGICAL GARDENS
3540	Metalworking Machinery	4920	Gas Production and Distribution		MEMBERSHIP ORGANIZATIONS
3541	Machine tools, metal cutting types	4922	Natural gas transmission	8600	ENGINEERING & MANAGEMENT SERVICES
3542	Machine tools, metal forming types	4923	Gas transmission and distribution	8700	
3543	Industrial patterns	4924	Natural gas distribution		
3544	Special dies, tools, jigs & fixtures	4925	Gas production and/or distribution	I	SERVICES
3545	Machine tool accessories	4930	Combination Utility Services	7200	PERSONAL SERVICES
3546	Power-driven handtools	4931	Electric and other services combined	7210	Laundry, Cleaning, & Garment Services
3547	Rolling mill machinery	4932	Gas and other services combined	7211	Power laundries, family & commercial
3548	Welding apparatus	4939	Combination utilities, nec	7212	Garment pressing & cleaners' agents
3549	Metalworking machinery, nec	4940	Water Supply	7213	Linen supply
3550	Special Industry Machinery	4950	Sanitary Services	7215	Coin-operated laundries and cleaning
3560	General Industrial Machinery	4952	Sewerage systems	7216	Drycleaning plants, except rug
3561	Pumps and pumping equipment	4953	Refuse systems	7217	Carpet and upholstery cleaning
3562	Ball and roller bearings	4959	Sanitary services, nec	7218	Industrial laundries
3563	Air and gas compressors	4960	Steam and Air-Conditioning Supply	7219	Laundry and garment services, nec
3564	Blowers and fans	4970	Irrigation Systems	7230	Beauty Shops
3565	Packaging machinery			7240	Barber Shops
3566	Speed changers, drives and gears	F	WHOLESALE TRADE	7250	Shoe Repair and Shoeshine Parlors
3567	Industrial furnaces and ovens	5000	WHOLESALE TRADE-DURABLE GOODS	7260	Funeral Service and Crematories
3568	Power transmission equipment, nec	5010	Motor Vehicles, Parts, and Supplies	7290	Miscellaneous Personal Services
3569	General industrial machinery, nec	5020	Furniture and Homefurnishings	7299	Miscellaneous personal services, nec
3570	Computer and Office Equipment	5030	Lumber and Construction Materials	7300	BUSINESS SERVICES
3580	Refrigeration and Service Machinery	5040	Professional & Commercial Equipment	7310	Advertising
3590	Industrial Machinery, NEC	5050	Metals and Minerals, Except Petroleum	7320	Credit Reporting and Collection
3600	ELECTRONIC & OTHER ELECTRIC EQUIPMENT	5060	Electrical Goods	7330	Mailing, Reproduction, Stenographic
3610	Electric Distribution Equipment	5070	Hardware, Plumbing & Heating Equipment	7334	Photocopying & duplicating services
3620	Electrical Industrial Apparatus	5080	Machinery, Equipment and Supplies	7336	Commercial art and graphic design
3630	Household Appliances	5090	Miscellaneous Durable Goods	7340	Services to Buildings
3640	Electric Lighting and Wiring Equipment	5093	Scrap and waste materials	7342	Disinfecting & pest control services
3650	Household Audio and Video Equipment	5100	WHOLESALE TRADE-NONDURABLE GOODS	7349	Building maintenance services, nec
3660	Communications Equipment	5110	Paper and Paper Products	7350	Misc. Equipment Rental & Leasing
3661	Telephone and telegraph apparatus	5120	Drugs, Proprietarys, and Sundries	7352	Medical equipment rental
3663	Radio & TV communications equipment	5130	Apparel, Piece Goods, and Notions	7353	Heavy construction equipment rental
3669	Communications equipment, nec	5140	Groceries and Related Products	7359	Equipment rental & leasing, nec
3670	Electronic Components and Accessories	5150	Farm-Product Raw Materials	7360	Personnel Supply Services
3690	Misc. Electrical Equipment & Supplies	5160	Chemicals and Allied Products	7380	Miscellaneous Business Services
3700	TRANSPORTATION EQUIPMENT	5170	Petroleum and Petroleum Products	7384	Photofinishing laboratories
3710	Motor Vehicles and Equipment	5171	Petroleum bulk stations & terminals	7500	AUTO REPAIR, SERVICES, AND PARKING
3711	Motor vehicles and car bodies	5172	Petroleum products, nec	7510	Automotive Rentals, No Drivers
3713	Truck and bus bodies	5180	Beer, Wine, and Distilled Beverages	7513	Truck rental and leasing no drivers
3714	Motor vehicle parts and accessories	5190	Misc. Nondurable Goods	7514	Passenger car rental
3715	Truck trailers			7515	Passenger car leasing
3716	Motor homes	G	RETAIL TRADE	7519	Utility trailer rental
3720	Aircraft and Parts	5200	BUILDING MATERIALS & GARDEN SUPPLIES	7520	Automobile Parking
3730	Ship and Boat Building and Repairing	5300	GENERAL MERCHANDISE STORES	7530	Automotive Repair Shops
3740	Railroad Equipment	5400	FOOD STORES	7532	Trip & body repair & paint shops
3750	Motorcycles, Bicycles, and Parts	5450	Dairy Products Stores	7533	Auto exhaust system repair shops
3760	Guided Missiles, Space Vehicles, Parts	5460	Retail Bakeries	7534	Tire retreading and repair shops
3790	Miscellaneous Transportation Equipment	5490	Miscellaneous Food Stores	7536	Automotive glass replacement shops
800	INSTRUMENTS AND RELATED PRODUCTS	5500	AUTOMOTIVE DEALERS & SERVICE STATIONS	7537	Automotive transmission repair shops
810	Search and Navigation Equipment	5510	New and Used Car Dealers	7538	General automotive repair shops
820	Measuring and Controlling Devices	5520	Used Car Dealers	7539	Automotive repair shops, nec
840	Medical Instruments and Supplies	5530	Auto and Home Supply Stores	7540	Automotive Services, Except Repair
850	Ophthalmic Goods	5540	Gasoline Service Stations	7542	Carwashes
860	Photographic Equipment and Supplies	5550	Boat Dealers	7549	Automotive services, nec
870	Watches, Clocks, Watchcases & Parts	5560	Recreational Vehicle Dealers	8000	HEALTH SERVICES
900	MISCELLANEOUS MANUFACTURING INDUSTRIES	5570	Motorcycle Dealers	8060	Hospitals
100	LEATHER AND LEATHER PRODUCTS	5590	Automotive Dealers, NEC	8070	Medical and Dental Laboratories
910	Jewelry, Silverware, and Plated Ware	5600	APPAREL AND ACCESSORY STORES	8080	Home Health Care Services
930	Musical Instruments	5700	FURNITURE AND HOMEFURNISHINGS STORES	8090	Health and Allied Services, NEC
940	Toys and Sporting Goods	5800	EATING AND DRINKING PLACES	8200	EDUCATIONAL SERVICES
950	Pens, Pencils, Office, & Art Supplies	5900	MISCELLANEOUS RETAIL	8210	Elementary and Secondary Schools
960	Costume Jewelry and Notions	5910	Drug Stores and Proprietary Stores	8220	Colleges and Universities
990	Miscellaneous Manufactures	5920	Liquor Stores	8230	Libraries
		5930	Used Merchandise Stores	8240	Vocational Schools
		5940	Miscellaneous Shopping Goods Stores	8290	Schools & Educational Services, NEC
		5960	Nonstore Retailers	J	PUBLIC ADMINISTRATION
		5980	Fuel Dealers	9100	EXECUTIVE, LEGISLATIVE, AND GENERAL
		5983	Fuel oil dealers	9200	JUSTICE, PUBLIC ORDER, AND SAFETY
		5984	Liquefied petroleum gas dealers	9220	Public Order and Safety
		5989	Fuel dealers, nec	9221	Police protection
		5990	Retail Stores, NEC	9223	Correctional institutions
		6000	DEPOSITORY INSTITUTIONS	9224	Fire protection
		6300	INSURANCE CARRIERS	9300	FINANCE, TAXATION, & MONETARY POLICY
		6500	REAL ESTATE	9400	ADMINISTRATION OF HUMAN RESOURCES
		H	FINANCE, INSURANCE, AND REAL ESTATE	9500	ENVIRONMENTAL QUALITY AND HOUSING
		4700	TRANSPORTATION SERVICES	9510	Environmental Quality
		4720	Passenger Transportation Arrangement	9530	Housing and Urban Development
		4730	Freight Transportation Arrangement	9600	ADMINISTRATION OF ECONOMIC PROGRAMS
		4740	Rental of Railroad Cars	9621	Administration of Transportation
		4780	Miscellaneous Transportation Services	9660	Space Research and Technology
		6100	NONDEPOSITORY INSTITUTIONS		NATIONAL SECURITY AND INTL AFFAIRS
		6200	SECURITY AND COMMODITY BROKERS	K	NONCLASSIFIABLE ESTABLISHMENTS
		6400	INSURANCE AGENTS, BROKERS, & SERVICE		
		6700	HOLDING AND OTHER INVESTMENT OFFICES		

ef.: Standard Industrial Classification Manual Executive Office of the President, Office of Management and Budget, 1987, p. 423-443.

ote: NEC - Not Elsewhere Classified MISC - Miscellaneous



South Coast Air Quality
Management District
21865 East Copley Drive
Diamond Bar, CA 91765
(909) 396-2000

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) APPLICABILITY FORM 400 - CEQA

The SCAQMD is required by state law, the California Environmental Quality Act (CEQA), to review discretionary permit project applications for potential air quality and other environmental impacts. This form is a screening tool to assist the SCAQMD in clarifying whether or not the project¹ has the potential to generate significant adverse environmental impacts that might require preparation of a CEQA document [CEQA Guidelines §15060(a)].² Refer to the attached instructions for guidance in completing this form.³ For each Form 400-A application, also complete and submit one Form 400-CEQA. If submitting multiple Form 400-A applications for the same project at the same time, only one 400-CEQA form is necessary for the entire project. If you need assistance completing this form, contact Lori Inga at (909) 396-3109.

FACILITY INFORMATION

Facility Name: _____

Facility ID (6-Digit): _____

Project Description: _____

REVIEW FOR EXEMPTION FROM FURTHER CEQA ACTION

Check "Yes" or "No" as applicable

	Yes	No	Is this application for:
A.	<input type="checkbox"/>	<input type="checkbox"/>	A request for a change of permittee only (without equipment modifications)?
B.	<input type="checkbox"/>	<input type="checkbox"/>	Equipment certification or equipment registration?
C.	<input type="checkbox"/>	<input type="checkbox"/>	A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project? If yes, a permit cannot be issued until a Final CEQA document and Notice of Determination is submitted.
D.	<input type="checkbox"/>	<input type="checkbox"/>	Equipment damaged as a result of a disaster during state of emergency?
E.	<input type="checkbox"/>	<input type="checkbox"/>	A Title V permit renewal (without equipment modifications)?
F.	<input type="checkbox"/>	<input type="checkbox"/>	A Title V administrative permit revision?
G.	<input type="checkbox"/>	<input type="checkbox"/>	The conversion of an existing permit into an initial Title V permit?
H.	<input type="checkbox"/>	<input type="checkbox"/>	A functionally identical permit unit replacement with no increase in rating or emissions?
I.	<input type="checkbox"/>	<input type="checkbox"/>	A change of daily VOC permit limit to a monthly VOC permit limit?

If "Yes" is checked for any question above, your application does not require additional evaluation for CEQA applicability. Skip to page 2, "SIGNATURES" and sign and date this form.

REVIEW OF IMPACTS WHICH MAY TRIGGER CEQA

Complete Sections I-VI by checking "Yes" or "No" as applicable. To avoid delays in processing your application(s), explain all "Yes" responses on a separate sheet and attach it to this form.

	Yes	No	Section I - General
1.	<input type="checkbox"/>	<input type="checkbox"/>	Has this project generated any known public controversy regarding potential adverse impacts that may be generated by the project? Controversy may be construed as concerns raised by local groups at public meetings; adverse media attention such as negative articles in newspapers or other periodical publications, local news programs, environmental justice issues, etc.
2.	<input type="checkbox"/>	<input type="checkbox"/>	Is this project part of a larger project?
Section II - Air Quality			
3.	<input type="checkbox"/>	<input type="checkbox"/>	Will there be any demolition, excavating, and/or grading construction activities that encompass an area exceeding 20,000 square feet?
4.	<input type="checkbox"/>	<input type="checkbox"/>	Does this project include the open outdoor storage of dry bulk solid materials that could generate dust? If Yes, include a plot plan with the application package.

¹ A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry-cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

² To download the CEQA guidelines, visit http://ceres.ca.gov/env_law/state.html

³ To download this form and the instructions, visit <http://www.scaqmd.gov/ceqa> or <http://www.scaqmd.gov/permit>

	Yes	No	
5.	<input type="checkbox"/>	<input type="checkbox"/>	Would this project result in noticeable off-site odors from activities that may not be subject to SCAQMD permit requirements? For example, compost materials or other types of greenwaste (i.e., lawn clippings, tree trimmings, etc.) have the potential to generate odor complaints subject to Rule 402 - Nuisance.
6.	<input type="checkbox"/>	<input type="checkbox"/>	Does this project cause an increase of emissions from marine vessels, trains and/or airplanes?
7.	<input type="checkbox"/>	<input type="checkbox"/>	Will the proposed project increase the QUANTITY of hazardous materials stored aboveground onsite or transported by mobile vehicle to or from the site by greater than or equal to the amounts associated with each compound on the attached Table 1? ⁴
Section III - Water Resources			
8.	<input type="checkbox"/>	<input type="checkbox"/>	Will the project increase demand for water at the facility by more than 5,000,000 gallons per day? The following examples identify some, but not all, types of projects that may result in a "yes" answer to this question: 1) projects that generate steam; 2) projects that use water as part of the air pollution control equipment; 3) projects that require water as part of the production process; 4) projects that require new or expansion of existing sewage treatment facilities; 5) projects where water demand exceeds the capacity of the local water purveyor to supply sufficient water for the project; and 6) projects that require new or expansion of existing water supply facilities.
9.	<input type="checkbox"/>	<input type="checkbox"/>	Will the project require construction of new water conveyance infrastructure? Examples of such projects are when water demands exceed the capacity of the local water purveyor to supply sufficient water for the project, or require new or modified sewage treatment facilities such that the project requires new water lines, sewage lines, sewage hook-ups, etc.
Section IV - Transportation/Circulation			
10.	<input type="checkbox"/>	<input type="checkbox"/>	Will the project result in (Check all that apply):
	<input type="checkbox"/>	<input type="checkbox"/>	a. the need for more than 350 new employees?
	<input type="checkbox"/>	<input type="checkbox"/>	b. an increase in heavy-duty transport truck traffic to and/or from the facility by more than 350 truck round-trips per day?
	<input type="checkbox"/>	<input type="checkbox"/>	c. increase customer traffic by more than 700 visits per day?
Section V - Noise			
11.	<input type="checkbox"/>	<input type="checkbox"/>	Will the project include equipment with a noise specification GREATER THAN 90 decibels (dB)?
Section VI - Public Services			
12.	<input type="checkbox"/>	<input type="checkbox"/>	Will the project create a permanent need for new or additional public services in any of the following areas (Check all that apply):
	<input type="checkbox"/>	<input type="checkbox"/>	a. Solid waste disposal? Check "No" if the projected potential amount of wastes generated by the project is less than five tons per day.
	<input type="checkbox"/>	<input type="checkbox"/>	b. Hazardous waste disposal? Check "No" if the projected potential amount of hazardous wastes generated by the project is less than 42 cubic yards per day (or equivalent in pounds).
REMINDER: For each "Yes" checked in the sections above, attach all pertinent information including but not limited to: estimated quantities, volumes, weights, etc.			

SIGNATURES

I HEREBY CERTIFY THAT ALL INFORMATION CONTAINED HEREIN AND INFORMATION SUBMITTED WITH THIS APPLICATION IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE. I UNDERSTAND THAT THIS FORM IS A SCREENING TOOL AND THAT THE SCAQMD RESERVES THE RIGHT TO CONSIDER OTHER PERTINENT INFORMATION IN DETERMINING CEQA APPLICABILITY.

SIGNATURE OF RESPONSIBLE OFFICIAL OF FIRM:		TITLE OF RESPONSIBLE OFFICIAL OF FIRM:	
TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL OF FIRM:	RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER:	DATE Signed:	
SIGNATURE OF PREPARER, IF PREPARED BY PERSON OTHER THAN RESPONSIBLE OFFICIAL OF FIRM:		TITLE OF PREPARER:	
TYPE OR PRINT NAME OF PREPARER:	PREPARER'S TELEPHONE NUMBER:	DATE Signed:	

THIS CONCLUDES FORM 400-CEQA. INCLUDE THIS FORM AND THE ATTACHMENTS WITH FORM 400-A.

⁴ Table 1 - Regulated Substances List and Threshold Quantities for Accidental Release Prevention can be found in the Instructions for Form 400-CEQA

FORM 400-CEQA INSTRUCTIONS

Background:

The California Environmental Quality Act (CEQA) is a state law designed to inform the public of any potential adverse environmental impacts resulting from local projects. The SCAQMD has formalized its environmental review process by developing Form 400-CEQA to be completed by the applicant for each project. Form 400-CEQA is a screening tool used by the SCAQMD to determine if the project is exempt from CEQA, or if an analysis of potential environmental impacts is necessary. If a CEQA analysis is necessary, the SCAQMD will contact the project applicant to discuss and assist with the steps necessary to fulfill the requirements of CEQA.

A "project" means the whole of an action which has a potential for resulting in physical change to the environment, including construction activities, clearing or grading of land, improvements to existing structures, and activities or equipment involving the issuance of a permit. For example, a project might include installation of a new, or modification of an existing internal combustion engine, dry cleaning facility, boiler, gas turbine, spray coating booth, solvent cleaning tank, etc.

Most every permit application must be evaluated for CEQA applicability EXCEPT if the application is for:

- A request for a change of permittee only (without equipment modifications);
- Equipment certification or equipment registration;
- A CEQA and/or NEPA document previously or currently prepared that specifically evaluates this project;
- Equipment damaged as a result of a disaster during state of emergency;
- A Title V permit renewal (without equipment modifications);
- A Title V administrative permit revision;
- The conversion of an existing permit into an initial Title V permit;
- A functionally identical permit unit replacement with no increase in rating or emissions; or,
- A change of daily VOC permit limit to a monthly VOC permit limit.

If your project is one of the items listed above, you do NOT need to complete the section "Review of Impacts Which May Trigger CEQA" of Form 400-CEQA. Otherwise, all other types of permit applications must complete the entire Form 400-CEQA before your application can be deemed complete. If submitting multiple applications for the same project, only one Form 400-CEQA is necessary. Form 400-CEQA and these instructions are available by hardcopy or for downloading from <http://www.aqmd.gov/ceqa/400CEQA.html>

Instructions to complete Form 400-CEQA:

1. Provide facility-specific information and briefly describe the project.
2. Answer **all** questions in "Review For Exemption From Further CEQA Action." If there are any "Yes" responses, skip to Instruction 6.
3. Answer **all** questions in "Review of Impacts Which May Trigger CEQA."
4. Refer to the attached Table 1 for additional guidance with Section II, Question #7.
5. Attach pertinent information regarding any environmental topic to explain "yes" responses (e.g. estimated quantities, volume, weights, etc.).
6. Sign page 2 of the form (by the responsible official of the firm, the preparer or both, as necessary).
7. Include Form 400-CEQA and its attachments to the main project application submitted with Form 400-A and the other appropriate documents.
8. No additional fee is required for processing the 400-CEQA form.

Notice of Exemption (Optional):

Once a project is evaluated by SCAQMD staff to be exempt from CEQA and the permit is issued, the applicant has the option to file a Notice of Exemption (NOE) with the county where the project is located. Though filing a NOE is optional, doing so within 5 days after the permit is issued will limit the period of time someone can file a court action challenging the approval of the project to 30 days. This is known as a "statute of limitations" for public review of the NOE. However, if an NOE is not filed, the statute of limitations will be 180 days.

To file a NOE, it is the responsibility of the applicant to complete the attached template and submit it to the appropriate county within the deadline. A fee is required from three of the four counties to file a NOE with the following county clerks:

County of Los Angeles \$25* County Clerk, Gina Morla 12400 E. Imperial Hwy, Room 2001 Norwalk, California 90650 (562) 462-2057	County of Orange \$43* County Clerk, EIR Desk 12 Civic Center Plaza, Room 106 Santa Ana, California 92702 (714) 834-4625
County of Riverside \$78* County Clerk, Cherrie Seager 2724 Gateway Drive Riverside, California 92507 (909) 486-7077	County of San Bernardino \$0* County Clerk 385 N. Arrowhead Ave. San Bernardino, California 92415 (909) 387-4578

* Since fees are subject to change, contact the county clerks at the above phone numbers to verify the correct fee.

If the applicant would like the SCAQMD to prepare the NOE for their project, a preparation fee pursuant to Rule 301 (i)(1) will need to be collected by the SCAQMD at the same time the 400-CEQA form is submitted to the SCAQMD. Because of the time limits imposed by CEQA, if a project is deemed exempt, submitting the appropriate preparation and county fees up front will ensure the NOE is filed in a timely manner. If the project does not qualify for an NOE, the full amount will be returned.

The SCAQMD will also submit the NOE to the appropriate county on behalf of the applicant. However, before submitting the NOE to Los Angeles, Orange or Riverside counties, the SCAQMD will need to collect the appropriate county fee, listed above, from the applicant. If the SCAQMD prepares the NOE, the project applicant must submit a check to the SCAQMD made out to the county clerk of the county in which the project is located (do not name an individual on the check), and not to the SCAQMD. No county fee is required for projects located in San Bernardino County.

Questions regarding Form 400-CEQA may be directed to Ms. Lori Inga at (909) 396-3109.

**Table 1 – Regulated Substances List and Threshold Quantities
for Accidental Release Prevention
(344 Substances)**

To assist you in determining what type(s) of chemicals or compounds are contained in the products used at your facility, the following resources may be helpful:

- 1) Refer to each product's Material Safety Data Sheet (MSDS) which typically identifies the chemical, either by brand name, common name, chemical name, or Chemical Abstract Service number (CAS). If the MSDS isn't included as part of the product shipment, it may be obtained directly from the supplier, distributor, vendor or manufacturer.
- 2) Refer to the equipment manufacturer's specifications to establish what products are suitable for proper operation of the equipment.

For assistance in quantifying the amount (in pounds) of each chemical or compound used at your facility, contact:

- 1) Provider of the MSDS sheet(s);
- 2) Chemical manufacturer;
- 3) Permitting Engineering Consultant; or,
- 4) SCAQMD Small Business Assistance and Outreach Office.

Chemical Name	CAS No.	Threshold Quantity (lbs)
Acetone Cyanohydrin ¹	75-86-5	1,000
Acetone Thiosemicarbazide	1752-30-3	1,000/10,000 ²
Acetaldehyde	75-07-0	10,000
Acetylene [Ethyne]	74-86-2	10,000
Acrolein [2-Propenal]	107-02-8	500
Acrylamide	79-06-1	1,000/10,000 ²
Acrylonitrile [2-Propenenitrile]	107-13-1	10,000
Acrylyl chloride [2-Propenoyl chloride]	814-68-6	100
Aldicarb	116-06-3	100/10,000 ²
Aldrin	309-00-2	500/10,000 ²
Allyl alcohol [2-Propen-1-ol]	107-18-61	1,000
Allylamine [2-Propen-1-amine]	107-11-9	500
Aluminum Phosphide ³	20859-73-8	500
Aminopterin	54-62-6	500/10,000 ²
Amiton Oxalate	3734-97-2	100/10,000 ²
Ammonia ⁴	7664-41-7	500
Aniline ¹	62-53-3	1,000
Antimycin A	1397-94-0	1,000/10,000 ²
ANTU	86-88-4	500/10,000 ²
Arsenic Pentoxide	1303-28-2	100/10,000 ²
Arsenous Oxide	1327-53-3	100/10,000 ²
Arsenous Trichloride	7784-34-1	500
Arsine	7784-42-1	100
Azinphos-Ethyl	2642-71-9	100/10,000 ²
Azinphos-Methyl	86-50-0	10/10,000 ²
Benzene, 1-(Chloromethyl)-4-Nitro-	100-14-1	500/10,000 ²
Benzeneearsonic Acid	98-05-5	10/10,000 ²
Benzimidazole, 4,5-Dichloro-2-(Trifluoromethyl)-	3615-21-2	500/10,000 ²

¹ Extracted from California Accidental Release Prevention (CalARP) Program, final regulations published on November 16, 1998 in California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5.

Chemical Name	CAS No.	Threshold Quantity (lbs)
Benzotrichloride ¹	98-07-7	100
Bicyclo[2.2.1]Heptane-2-Carbonitrile, 5-Chloro-6-(((Methylamino)Carbonyl)Oxy)Imino)-(1-alpha, 2-beta, 4-alpha, 5alpha, 6E))-	15271-41-7	500/10,000 ²
Bis(Chloromethyl) Ketone	534-07-6	10/10,000 ²
Bitoscanate	4044-65-9	500/10,000 ²
Boron trichloride [Borane, trichloro-]	10294-34-5	500
Boron trifluoride [Borane, trifluoro-]	7637-07-2	500
Boron trifluoride compound with methyl ether (1:1)	353-42-4	1,000
Bromadiolone	28772-56-7	100/10,000 ²
Bromine	7726-95-6	500
Bromotrifluorethylene [Ethene, bromotrifluoro-]	598-73-2	10,000
Butane	106-97-8	10,000
Butene	25167-67-3	10,000
1-Butene	106-98-9	10,000
2-Butene	107-01-7	10,000
2-Butene-cis	590-18-1	10,000
2-Butene-trans [2-Butene, (E)]	624-64-6	10,000
1,3-Butadiene	106-99-0	10,000
Cadmium Oxide	1306-19-0	100/10,000 ²
Cadmium Stearate	2223-93-0	1,000/10,000 ²
Calcium Arsenate	7778-44-1	10,000
Camphenchlor	8001-35-2	500/10,000 ²
Cantharidin	56-25-7	100/10,000 ²
Carbachol Chloride	51-83-2	500/10,000 ²
Carbamic Acid, Methyl-,o-(((2,4-Dimethyl-1,3-Dithiolan-2-yl)Methylene)Amino)-	26419-73-8	100/10,000 ²
Carbofuran	1563-66-2	10/10,000 ²
Carbon disulfide	75-15-0	10,000
Carbon oxysulfide [Carbon oxide sulfide (COS)]	463-58-1	10,000
Chlorine	7782-50-5	100
Chlorine dioxide [Chlorine oxide (ClO ₂)]	10049-04-4	1,000
Chlorine monoxide [Chlorine oxide]	7791-21-1	10,000
Chlormequat Chloride	999-81-5	100/10,000 ²
Chloroacetic Acid	79-11-8	100/10,000 ²
Chloroform [Methane, trichloro-]	67-66-3	10,000
Chloromethyl ether [Methane, oxybis [chloro-]	542-88-1	100
Chloromethyl methyl ether [Methane, chloromethoxy-]	107-30-2	100
Chlorophacinone	3691-35-8	100/10,000 ²
1-Chloropropylene [1-Propene, 1-chloro-]	590-21-6	10,000
2-Chloropropylene [1-Propene, 2-chloro-]	557-98-2	10,000
Chloroxuron	1982-47-4	500/10,000 ²
Chromic Chloride	10025-73-7	1/10,000 ²
Cobalt Carbonyl	10210-68-1	10/10,000 ²
Cobalt, ((2,2'-(1,2-Ethanediy)bis (Nitrilomethylidyne))Bis(6-Fluorophenolato))(2-)-N,N',O,O')-	62207-76-5	100/10,000 ²
Colchicine	64-86-8	10/10,000 ²
Coumaphos	56-72-4	100/10,000 ²
Coumatetralyl	5836-29-3	500/10,000 ²

Chemical Name	CAS No.	Threshold Quantity (lbs)
Cresol, o-	95-48-7	1,000/10,000 ²
Crimidine	535-89-7	100/10,000 ²
Crotonaldehyde	4170-30-3	1,000
Crotonaldehyde, (E)	123-73-9	1,000
Cyanogen Bromide	506-68-3	500/10,000 ²
Cyanogen [Ethanedinitrile]	460-19-5	10,000
Cyanogen chloride	506-77-4	10,000
Cyanogen Iodide	506-78-5	1,000/10,000 ²
Cyanuric Fluoride	675-14-9	100
Cycloheximide	66-81-9	100/10,000 ²
Cyclohexylamine [Cyclohexanamine]	108-91-8	10,000
Cyclopropane	75-19-4	10,000
Decaborane(14)	17702-41-9	500/10,000 ²
Dialifor	10311-84-9	100/10,000 ²
Diborane	19287-45-7	2,500
Dichlorosilane [Silane, dichloro-]	4109-96-0	10,000
Diepoxybutane	1464-53-5	500
Difluoroethane [Ethane, 1,1-difluoro-]	75-37-6	10,000
Digitoxin	71-63-6	100/10,000 ²
Digoxin	20830-75-5	10/10,000 ²
Dimethoate	60-51-5	500/10,000 ²
Dimethyldichlorosilane	75-78-5	500
Dimethylamine [Methanamine, N-methyl-]	124-40-3	10,000
Dimethyldrazine	57-14-7	1,000
Dimethyl-p-Phenylenediamine	99-98-9	10/10,000 ²
Dimethyl Sulfate ¹	77-78-1	500
Dimetilan	644-64-4	500/10,000 ²
2,2-Dimethylpropane [Propane, 2,2-dimethyl-]	463-82-1	10,000
Dinitrocresol	534-52-1	10/10,000 ²
Dinoseb	88-85-7	100/10,000 ²
Dinoterb	1420-07-1	500/10,000 ²
Diphacinone	82-66-6	10/10,000 ²
Disulfoton ¹	298-04-4	500
Dithiazanine Iodide	514-73-8	500/10,000 ²
Dithiobiuret	541-53-7	100/10,000 ²
Emetine, Dihydrochloride	316-42-7	1/10,000 ²
Endosulfan	115-29-7	10/10,000 ²
Endothion	2778-04-3	500/10,000 ²
Endrin	72-20-8	500/10,000 ²
Epichlorohydrin [Oxirane, (chloromethyl)-]	106-89-8	1,000
EPN	2104-64-5	100/10,000 ²
Ergocalciferol	50-14-6	1,000/10,000 ²
Ergotamine Tartrate	379-79-3	500/10,000 ²
Ethane	74-84-0	10,000
Ethyl acetylene [1-Butyne]	107-00-6	10,000
Ethyl chloride [Ethane, chloro-]	75-00-3	10,000
Ethyl ether [Ethane, 1,1'-oxybis-]	60-29-7	10,000
Ethyl mercaptan [Ethanethiol]	75-08-1	10,000
Ethyl nitrite [Nitrous acid, ethyl ester]	109-95-5	10,000
Ethylamine [Ethanamine]	75-04-7	10,000
Ethylene [Ethene]	74-85-1	10,000

Chemical Name	CAS No.	Threshold Quantity (lbs)
Ethylene Fluorohydrin	371-62-0	10
Ethyleneimine	151-56-4	500
Ethylene oxide	75-21-8	1,000
Ethylenediamine [1,2-Ethanediamine]	107-15-3	10,000
Ethyleneimine [Aziridine]	151-56-4	10,000
Fenamiphos	22224-92-6	10/10,000 ²
Fluometil	4301-50-2	100/10,000 ²
Fluorine	7782-41-4	500
Fluoroacetamide	640-19-7	100/10,000 ²
Fluoroacetic Acid	144-49-0	10/10,000 ²
Fluoroacetyl Chloride	359-06-8	10
Fluorouracil	51-21-8	500/10,000 ²
Formaldehyde ⁴	50-00-0	500
Formetanate Hydrochloride	23422-53-9	500/10,000 ²
Formparanate	17702-57-7	100/10,000 ²
Fuberidazole	3878-19-1	100/10,000 ²
Furan	110-00-9	500
Gallium Trichloride	13450-90-3	500/10,000 ²
Hydrazine	302-01-2	1,000
Hydrocyanic acid	74-90-8	100
Hydrogen	1333-74-0	10,000
Hydrogen Chloride (gas only)	7647-01-0	500
Hydrogen Fluoride	7664-39-3	100
Hydrogen selenide	7783-07-5	10
Hydrogen sulfide	7783-06-4	500
Hydroquinone ³	123-31-9	500/10,000 ²
Iron, pentacarbonyl- [Iron carbonyl (Fe(CO) ₅), (TB-5-11)-]	13463-40-6	100
Isobenzan	297-78-9	100/10,000 ²
Isobutane [Propane, 2-methyl]	75-28-5	10,000
Isobutyronitrile	78-82-0	1,000
Isocyanic Acid, 3,4-DichlorophenylEster	102-36-3	500/10,000 ²
Isodrin	465-73-6	100/10,000 ²
Isopentane [Butane, 2-methyl-]	78-78-4	10,000
Isophorone Diisocyanate	4098-71-9	100
Isoprene [1,3-Butadiene, 2-methyl-]	78-79-5	10,000
Isopropyl chloride [Propane, 2-chloro-]	75-29-6	10,000
Isopropyl chloroformate [Carbonochloridic acid, 1-methylethylester]	108-23-6	1,000
Isopropylamine [2-Propanamine]	75-31-0	10,000
Leptophos	21609-90-5	500/10,000 ²
Lewisite ¹	541-25-3	10
Lindane	58-89-9	1,000/10,000 ²
Lithium Hydride ³	7580-67-8	100
Malononitrile	109-77-3	500/10,000 ²
Manganese, Tricarbonyl Methylcyclopentadienyl ¹	12108-13-3	100
Mechlorethamine ¹	51-75-2	10
Mercuric Acetate	1600-27-7	500/10,000 ²
Mercuric Chloride	7487-94-7	500/10,000 ²
Mercuric Oxide	21908-53-2	500/10,000 ²
Methacrylonitrile [2-Propenenitrile, 2-methyl-]	126-98-7	500

Chemical Name	CAS No.	Threshold Quantity (lbs)
Methacryloyl Chloride	920-46-7	100
Methacryloyloxyethylisocyanate	30674-80-7	100
Methamidophos	10265-92-6	100/10,000 ²
Methane	74-82-8	10,000
Methanesulfonyl Fluoride	558-25-8	1,000
Methidathion	950-37-8	500/10,000 ²
Methiocarb	2032-65-7	500/10,000 ²
Methomyl	16752-77-5	500/10,000 ²
Methoxyethylmercuric Acetate	151-38-2	500/10,000
Methyl Bromide	74-83-9	1,000
2-Methyl-1-butene	563-46-2	10,000
3-Methyl-1-butene	563-45-1	10,000
Methyl chloride [Methane, chloro-]	74-87-3	10,000
Methyl 2-Chloroacrylate	80-63-7	500
Methyl chloroformate [Carbonochloridic acid, methylester]	79-22-1	500
Methyl ether [Methane, oxybis-]	115-10-6	10,000
Methyl formate [Formic acid, methyl ester]	107-31-3	10,000
Methyl Hydrazine	60-34-4	500
Methyl isocyanate [Methane, isocyanato-]	624-83-9	500
Methyl Isothiocyanate ³	556-61-6	500
Methyl Mercaptan	74-93-1	500
Methylmercuric Dicyanamide	502-39-6	500/10,000 ²
Methyl Phosphonic Dichloride ³	676-97-1	100
Methyl Thiocyanate	556-64-9	10,000
Methyltrichlorosilane	75-79-6	500
Methylamine [Methanamine]	74-89-5	10,000
2-Methylpropene [1-Propene, 2-methyl-]	115-11-7	10,000
Methyl Vinyl Ketone	78-94-4	10
Metolcarb	1129-41-5	100/10,000 ²
Mexacarbate	315-18-4	500/10,000 ²
Mitomycin C	50-07-7	500/10,000 ²
Monocrotophos	6923-22-4	10/10,000 ²
Muscimol	2763-96-4	500/10,000 ²
Mustard Gas ¹	505-60-2	500
Nickel carbonyl	13463-39-3	1
Nicotine Sulfate	65-30-5	100/10,000 ²
Nitric Acid	7697-37-2	1,000
Nitric oxide [Nitrogen oxide (NO)]	10102-43-9	100
Nitrobenzene ¹	98-95-3	10,000
Nitrogen Dioxide	10102-44-0	100
Norbormide	991-42-4	100/10,000 ²
Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]	8014-95-7	10,000
Organorhodium Complex (PMN-82-147)	MIXTURE	10/10,000 ²
Ouabain	630-60-4	100/10,000 ²
Oxamyl	23135-22-0	100/10,000 ²
Ozone	10028-15-6	100
Paraquat Dichloride	1910-42-5	10/10,000 ²
Paraquat Methosulfate	2074-50-2	10/10,000 ²
Parathion-Methyl	298-00-0	100/10,000 ²

Chemical Name	CAS No.	Threshold Quantity (lbs)
Paris Green	12002-03-8	500/10,000 ²
Pentaborane	19624-22-7	500
Pentadecylamine	2570-26-5	100/10,000 ²
Pentane	109-66-0	10,000
1-Pentene	109-67-1	10,000
2-Pentene, (E)-	646-04-8	10,000
2-Pentene, (Z)-	627-20-3	10,000
Peracetic acid [Ethaneperoxoic acid]	79-21-0	500
Perchloromethylmercaptan [Methanesulphenyl chloride, trichloro-]	594-42-3	500
Phenol	108-95-2	500/10,000 ²
Phenol, 2,2'-Thiobis(4-Chloro-6-Methyl)-	4418-66-0	100/10,000 ²
Phenol, 3-(Methylethyl)-, Methylcarbamate	64-00-6	500/10,000 ²
Phenoxarsine, 10, 10' - Oxydi-	58-36-6	500/10,000 ²
Phenyl Dichloroarsine ¹	696-28-6	500
Phenylhydrazine Hydrochloride	59-88-1	1,000/10,000 ²
Phenylmercury Acetate	62-38-4	500/10,000 ²
Phenylsilatrane	2097-19-0	100/10,000 ²
Phenylthiourea	103-85-5	100/10,000 ²
Phorate ¹	298-02-2	10
Phosacetim	4104-14-7	100/10,000 ²
Phosfolan	947-02-4	100/10,000 ²
Phosgene [Carbonic dichloride]	75-44-5	10
Phosmet	732-11-6	10/10,000 ²
Phosphine	7803-51-2	500
Phosphonothioic Acid, Methyl-, S-(2-(Bis(1-Methylethyl)Amino)Ethyl)O-Ethyl Ester. ¹	50782-69-9	100
Phosphorus ³	7723-14-0	100
Phosphorus oxychloride [Phosphoryl chloride]	10025-87-3	500
Phosphorus Pentachloride ³	10026-13-8	500
Phosphorus Trichloride	7719-12-2	1,000
Physostigmine	57-47-6	100/10,000 ²
Physostigmine, Salicylate (1:1)	57-64-7	100/10,000 ²
Picrotoxin	124-87-8	500/10,000 ²
Piperidine	110-89-4	1,000
Potassium Arsenite	10124-50-2	500/10,000 ²
Potassium Cyanide ³	151-50-8	100
Potassium Silver Cyanide ³	506-61-6	500
Promecarb	2631-37-0	500/10,000 ²
Propadiene [1,2-Propadiene]	463-49-0	10,000
Propane	74-98-6	10,000
Propargyl Bromide	106-96-7	10
Propiolactone, Beta- ¹	57-57-8	500
Propionitrile	107-12-0	500
Propiophenone, 4-Amino-	70-69-9	100/10,000 ²
Propyl Chloroformate	109-61-5	500
Propylene [1-Propene]	115-07-1	10,000
Propylene Oxide	75-56-9	10,000
Propyleneimine [Aziridine, 2-methyl-]	75-55-8	10,000
Propyne [1-Propyne]	74-99-7	10,000
Prothoate	2275-18-5	100/10,000 ²

Chemical Name	CAS No.	Threshold Quantity (lbs)
Pyrene	129-00-0	1,000/10,000 ²
Pyridine, 4-Amino	504-24-5	500/10,000 ²
Pyridine, 4-Nitro-, 1-Oxide	1124-33-0	500/10,000 ²
Pyriminil	53558-25-1	100/10,000 ²
1,3-Pentadiene	504-60-9	10,000
Salcomine	14167-18-1	500/10,000 ²
Sarin ¹	107-44-8	10
Selenious Acid	7783-00-8	1,000/10,000 ²
Semicarbazide Hydrochloride	563-41-7	1,000/10,000 ²
Silane	7803-62-5	10,000
Sodium Arsenate	7631-89-2	1,000/10,000 ²
Sodium Arsenite	7784-46-5	500/10,000 ²
Sodium Azide (Na (N3)) ³	26628-22-8	500
Sodium Cacodylate	124-65-2	100/10,000 ²
Sodium Cyanide (Na (CN)) ³	143-33-9	100
Sodium Fluoroacetate	62-74-8	10/10,000 ²
Sodium Selenate	13410-01-0	100/10,000 ²
Sodium Selenite	10102-18-8	100/10,000 ²
Sodium Tellurite	10102-20-2	500/10,000 ²
Stannane, Acetoxytriphenyl-	900-95-8	500/10,000 ²
Strychnine	57-24-9	100/10,000 ²
Strychnine Sulfate	60-41-3	100/10,000 ²
Sulfur Dioxide	7446-09-5	500
Sulfur tetrafluoride [Sulfur fluoride (SF4), (T-4)-]	7783-60-0	100
Sulfuric Acid ⁸	7664-93-9	1,000
Sulfur Trioxide ³	7446-11-9	100
Tabun ¹	77-81-6	10
Tellurium Hexafluoride	7783-80-4	100
Tetrafluoroethylene [Ethene, tetrafluoro-]	116-14-3	10,000
Tetramethyllead [Plumbane, tetramethyl-]	75-74-1	100
Tetramethylsilane [Silane, tetramethyl-]	75-76-3	10,000
Tetranitromethane	509-14-8	500
Thallium Sulfate	10031-59-1	100/10,000 ²
Thallous Carbonate	6533-73-9	100/10,000 ²
Thallous Chloride	7791-12-0	100/10,000 ²
Thallous Malonate	2757-18-8	100/10,000 ²
Thallous Sulfate	7446-18-6	100/10,000 ²
Thiocarbazide	2231-57-4	1,000/10,000 ²
Thiofanox	39196-18-4	100/10,000 ²
Thiosemicarbazide	79-19-6	100/10,000 ²
Thiourea, (2-Chlorophenyl)-	5344-82-1	100/10,000 ²
Thiourea, (2-Methylphenyl)-	614-78-8	500/10,000 ²
Titanium tetrachloride [Titanium chloride (TiCl4) (T-4)-]	7550-45-0	100
Toluene 2, 4-Diisocyanate ⁷	584-84-9	500
Toluene 2, 6-Diisocyanate ⁷	91-08-7	100
Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-]	26471-62-5	10,000
Triamphos	1031-47-6	500/10,000 ²
Trichloro(Chloromethyl)Silane	1558-25-4	100
Trichloro(Dichlorophenyl)Silane	27137-85-5	500

Chemical Name	CAS No.	Threshold Quantity (lbs)
Trichlorosilane [Silane, trichloro-]	10025-78-2	10,000
Triethoxysilane	998-30-1	500
Trifluorochloroethylene [Ethene, chlorotrifluoro-]	79-38-9	10,000
Trimethylamine [Methanamine, N,N-dimethyl-]	75-50-3	10,000
Trimethylchlorosilane [Silane, chlorotrimethyl-]	75-77-4	1,000
Trimethylolpropane Phosphite	824-11-3	100/10,000 ²
Trimethyltin Chloride	1066-45-1	500/10,000 ²
Triphenyltin Chloride	639-58-7	500/10,000 ²
Tris(2-Chloroethyl)Amine ¹	555-77-1	100
Valinomycin	2001-95-8	1,000/10,000 ²
Vanadium Pentoxide	1314-62-1	100/10,000 ²
Vinyl Acetate Monomer	108-05-4	1,000
Vinyl acetylene [1-Buten-3-yne]	689-97-4	10,000
Vinyl chloride [Ethene, chloro-]	75-01-4	10,000
Vinyl ethyl ether [Ethene, ethoxy-]	109-92-2	10,000
Vinyl fluoride [Ethene, fluoro-]	75-02-5	10,000
Vinyl methyl ether [Ethene, methoxy-]	107-25-5	10,000
Vinylidene chloride [Ethene, 1,1-dichloro-]	75-35-4	10,000
Vinylidene fluoride [Ethene, 1,1-difluoro-]	75-38-7	10,000
Warfarin	81-81-2	500/10,000 ²
Warfarin Sodium	129-06-6	100/10,000 ²
Xylylene Dichloride	28347-13-9	100/10,000 ²
Zinc, Dichloro(4,4-Dimethyl-5(((Methylamino)Carbonyl)Oxy)Imino)Pentanenitrile)-(T-4)-.	58270-08-9	100/10,000 ²
Zinc Phosphide ³	1314-84-7	500

END NOTES

- ¹ Substances that failed the evaluation pursuant to Health and Safety Code (H&S) §25532(g)(2) but remain listed pursuant to potential health impacts. The exemption in the California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5, Article 8, §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.
- ² These extremely hazardous substances are solids. The lesser quantity listed applies only if in powdered form and with a particle size of less than 100 microns; or if handled in solution or in molten form; or the substance has an NFPA rating for reactivity of 2, 3, or 4. Otherwise, a 10,000 pound threshold applies. The exemption in CCR § 2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.
- ³ These extremely hazardous substances are reactive solids. The exemption in CCR §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.
- ⁴ Appropriate synonyms or mixtures of extremely hazardous substances with the same CAS number are also regulated, e.g., formalin. The listing of ammonia includes anhydrous and aqueous forms of ammonia pursuant to H&S §25532(g)(2).
- ⁵ Hydroquinone is exempt in crystalline form
- ⁶ Sulfuric acid fails the evaluation pursuant to H&S §25532(g)(2) but remains listed as Regulated Substance only under the following conditions:
 - a. If concentrated with greater than 100 pounds of sulfur trioxide or the acid meets the definition of oleum. (The threshold for sulfur trioxide is 100 pounds and the threshold for oleum is 10,000 pounds)
 - b. If in a container with flammable hydrocarbons (flash point <73° F).
- ⁷ The exemption in CCR §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances

NOTICE OF EXEMPTION

To: County Clerk
County of _____

From: South Coast Air Quality
Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

Facility Name:

Project Address (street number, street name, city, zip and county):

Project Description:

Name of Public Agency Approving Project:
South Coast Air Quality Management District (SCAQMD)

Name of Person or Agency Carrying Out Project:
South Coast Air Quality Management District (SCAQMD)

Exempt Status:
Three Step Process:
State CEQA Guidelines §15002 (k)(1)
Review for Exemption:
State CEQA Guidelines §15061(b)(3)

Reasons why project is exempt:
The proposed project was evaluated pursuant to state CEQA Guidelines §15002 (k)(1) and because it can be seen with certainty that there is no possibility that the project in question may have a significant effect on the environment, the project is not subject to CEQA pursuant to state CEQA Guidelines §15061(b)(3).

SCAQMD Contact Person:	Telephone
<i>Lori Inga</i>	<i>(909) 396-3109</i>

Project Contact Person:	Telephone
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Attach a copy of the reviewed 400-CEQA Form (certified document of exemption finding).
Please note that an NOE has NOT been filed by the public agency approving this project.

Date Received for Filing _____ **Applicant Signature** _____

**Table 1 – Regulated Substances List and Threshold Quantities
for Accidental Release Prevention^{*}**
(344 Substances)

To assist you in determining what type(s) of chemicals or compounds are contained in the products used at your facility, the following resources may be helpful:

- 3) Refer to each product's Material Safety Data Sheet (MSDS) which typically identifies the chemical, either by brand name, common name, chemical name, or Chemical Abstract Service number (CAS). If the MSDS isn't included as part of the product shipment, it may be obtained directly from the supplier, distributor, vendor or manufacturer.
- 4) Refer to the equipment manufacturer's specifications to establish what products are suitable for proper operation of the equipment.

For assistance in quantifying the amount (in pounds) of each chemical or compound used at your facility, contact:

- 5) Provider of the MSDS sheet(s);
- 6) Chemical manufacturer;
- 7) Permitting Engineering Consultant; or,
- 8) SCAQMD Small Business Assistance and Outreach Office.

Chemical Name	CAS No.	Threshold Quantity (lbs)
Acetone Cyanohydrin ¹	75-86-5	1,000
Acetone Thiosemicarbazide	1752-30-3	1,000/10,000 ²
Acetaldehyde	75-07-0	10,000
Acetylene [Ethyne]	74-86-2	10,000
Acrolein [2-Propenal]	107-02-8	500
Acrylamide	79-06-1	1,000/10,000 ²
Acrylonitrile [2-Propenenitrile]	107-13-1	10,000
Acrylyl chloride [2-Propenoyl chloride]	814-68-6	100
Aldicarb	116-06-3	100/10,000 ²
Aldrin	309-00-2	500/10,000 ²
Allyl alcohol [2-Propen-1-ol]	107-18-61	1,000
Allylamine [2-Propen-1-amine]	107-11-9	500
Aluminum Phosphide ³	20859-73-8	500
Aminopterin	54-62-6	500/10,000 ²
Amiton Oxalate	3734-97-2	100/10,000 ²
Ammonia ⁴	7664-41-7	500
Aniline ¹	62-53-3	1,000
Antimycin A	1397-94-0	1,000/10,000 ²
ANTU	86-88-4	500/10,000 ²
Arsenic Pentoxide	1303-28-2	100/10,000 ²
Arsenous Oxide	1327-53-3	100/10,000 ²
Arsenous Trichloride	7784-34-1	500
Arsine	7784-42-1	100
Azinphos-Ethyl	2642-71-9	100/10,000 ²
Azinphos-Methyl	86-50-0	10/10,000 ²
Benzene, 1-(Chloromethyl)-4-Nitro-	100-14-1	500/10,000 ²
Benzeneearsonic Acid	98-05-5	10/10,000 ²
Benzimidazole, 4,5-Dichloro-2-(Trifluoromethyl)-	3615-21-2	500/10,000 ²
Benzotrichloride ¹	98-07-7	100
Bicyclo[2.2.1]Heptane-2-Carbonitrile, 5-Chloro-6-(((Methylamino)Carbonyl)Oxy)Imino)-, (1-alpha, 2-beta, 4-alpha, 5-alpha, 6E))-	15271-41-7	500/10,000 ²
Bis(Chloromethyl) Ketone	534-07-6	10/10,000 ²

^{*} Extracted from California Accidental Release Prevention (CalARP) Program, final regulations published on November 16, 1998 in California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5.

Chemical Name	CAS No.	Threshold Quantity (lbs)
Bitoscanate	4044-65-9	500/10,000 ²
Boron trichloride [Borane, trichloro-]	10294-34-5	500
Boron trifluoride [Borane, trifluoro-]	7637-07-2	500
Boron trifluoride compound with methyl ether (1:1)	353-42-4	1,000
Bromadiolone	28772-56-7	100/10,000 ²
Bromine	7726-95-6	500
Bromotrifluorethylene [Ethene, bromotrifluoro-]	598-73-2	10,000
Butane	106-97-8	10,000
Butene	25167-67-3	10,000
1-Butene	106-98-9	10,000
2-Butene	107-01-7	10,000
2-Butene-cis	590-18-1	10,000
2-Butene-trans [2-Butene, (E)]	624-64-6	10,000
1,3-Butadiene	106-99-0	10,000
Cadmium Oxide	1306-19-0	100/10,000 ²
Cadmium Stearate	2223-93-0	1,000/10,000 ²
Calcium Arsenate	7778-44-1	10,000
Camphechlor	8001-35-2	500/10,000 ²
Cantharidin	56-25-7	100/10,000 ²
Carbachol Chloride	51-83-2	500/10,000 ²
Carbamic Acid, Methyl-,o-(((2,4-Dimethyl-1,3-Dithiolan-2-yl)Methylene)Amino)-.	26419-73-8	100/10,000 ²
Carbofuran	1563-66-2	10/10,000 ²
Carbon disulfide	75-15-0	10,000
Carbon oxysulfide [Carbon oxide sulfide (COS)]	463-58-1	10,000
Chlorine	7782-50-5	100
Chlorine dioxide [Chlorine oxide (C102)]	10049-04-4	1,000
Chlorine monoxide [Chlorine oxide]	7791-21-1	10,000
Chlormequat Chloride	999-81-5	100/10,000 ²
Chloroacetic Acid	79-11-8	100/10,000 ²
Chloroform [Methane, trichloro-]	67-66-3	10,000
Chloromethyl ether [Methane, oxybis [chloro-]	542-88-1	100
Chloromethyl methyl ether [Methane, chloromethoxy-]	107-30-2	100
Chlorophacinone	3691-35-8	100/10,000 ²
1-Chloropropylene [1-Propene, 1-chloro-]	590-21-6	10,000
2-Chloropropylene [1-Propene, 2-chloro-]	557-98-2	10,000
Chloroxuron	1982-47-4	500/10,000 ²
Chromic Chloride	10025-73-7	1/10,000 ²
Cobalt Carbonyl	10210-68-1	10/10,000 ²
Cobalt, ((2,2'-(1,2-Ethanediylbis (Nitrilomethylidyne))Bis(6-Fluorophenolato))-(2-N,N',O,O'))-	62207-76-5	100/10,000 ²
Colchicine	64-86-8	10/10,000 ²
Coumaphos	56-72-4	100/10,000 ²
Coumatetralyl	5836-29-3	500/10,000 ²
Cresol, o-	95-48-7	1,000/10,000 ²
Crimidine	535-89-7	100/10,000 ²
Crotonaldehyde	4170-30-3	1,000
Crotonaldehyde, (E)	123-73-9	1,000
Cyanogen Bromide	506-68-3	500/10,000 ²
Cyanogen [Ethanedinitrile]	460-19-5	10,000
Cyanogen chloride	506-77-4	10,000
Cyanogen Iodide	506-78-5	1,000/10,000 ²
Cyanuric Fluoride	675-14-9	100
Cycloheximide	66-81-9	100/10,000 ²

Chemical Name	CAS No.	Threshold Quantity (lbs)
Cyclohexylamine [Cyclohexanamine]	108-91-8	10,000
Cyclopropane	75-19-4	10,000
Decaborane(14)	17702-41-9	500/10,000 ²
Dialifor	10311-84-9	100/10,000 ²
Diborane	19287-45-7	2,500
Dichlorosilane [Silane, dichloro-]	4109-96-0	10,000
Diepoxybutane ¹	1464-53-5	500
Difluoroethane [Ethane, 1,1-difluoro-]	75-37-6	10,000
Digitoxin	71-63-6	100/10,000 ²
Digoxin	20830-75-5	10/10,000 ²
Dimethoate	60-51-5	500/10,000 ²
Dimethyldichlorosilane	75-78-5	500
Dimethylamine [Methanamine, N-methyl-]	124-40-3	10,000
Dimethyldrazine	57-14-7	1,000
Dimethyl-p-Phenylenediamine	99-98-9	10/10,000 ²
Dimethyl Sulfate ¹	77-78-1	500
Dimetilan	644-64-4	500/10,000 ²
2,2-Dimethylpropane [Propane, 2,2-dimethyl-]	463-82-1	10,000
Dinitrocresol	534-52-1	10/10,000 ²
Dinoseb	88-85-7	100/10,000 ²
Dinoterb	1420-07-1	500/10,000 ²
Diphacinone	82-66-6	10/10,000 ²
Disulfoton ¹	298-04-4	500
Dithiazanine Iodide	514-73-8	500/10,000 ²
Dithiobiuret	541-53-7	100/10,000 ²
Emetine, Dihydrochloride	316-42-7	1/10,000 ²
Endosulfan	115-29-7	10/10,000 ²
Endothion	2778-04-3	500/10,000 ²
Endrin	72-20-8	500/10,000 ²
Epichlorohydrin [Oxirane, (chloromethyl)-]	106-89-8	1,000
EPN	2104-64-5	100/10,000 ²
Ergocalciferol	50-14-6	1,000/10,000 ²
Ergotamine Tartrate	379-79-3	500/10,000 ²
Ethane	74-84-0	10,000
Ethyl acetylene [1-Butyne]	107-00-6	10,000
Ethyl chloride [Ethane, chloro-]	75-00-3	10,000
Ethyl ether [Ethane, 1,1'-oxybis-]	60-29-7	10,000
Ethyl mercaptan [Ethanethiol]	75-08-1	10,000
Ethyl nitrite [Nitrous acid, ethyl ester]	109-95-5	10,000
Ethylamine [Ethanamine]	75-04-7	10,000
Ethylene [Ethene]	74-85-1	10,000
Ethylene Fluorohydrin	371-62-0	10
Ethyleneimine	151-56-4	500
Ethylene oxide	75-21-8	1,000
Ethylenediamine [1,2-Ethanediamine]	107-15-3	10,000
Ethyleneimine [Aziridine]	151-56-4	10,000
Fenamiphos	22224-92-6	10/10,000 ²
Fluenetil	4301-50-2	100/10,000 ²
Fluorine	7782-41-4	500
Fluoroacetamide	640-19-7	100/10,000 ²
Fluoroacetic Acid	144-49-0	10/10,000 ²
Fluoroacetyl Chloride	359-06-8	10
Fluorouracil	51-21-8	500/10,000 ²
Formaldehyde ⁴	50-00-0	500
Formetanate Hydrochloride	23422-53-9	500/10,000 ²
Formparanate	17702-57-7	100/10,000 ²
Fuberidazole	3878-19-1	100/10,000 ²

Chemical Name	CAS No.	Threshold Quantity (lbs)
Furan	110-00-9	500
Gallium Trichloride	13450-90-3	500/10,000 ²
Hydrazine	302-01-2	1,000
Hydrocyanic acid	74-90-8	100
Hydrogen	1333-74-0	10,000
Hydrogen Chloride (gas only)	7647-01-0	500
Hydrogen Fluoride	7664-39-3	100
Hydrogen selenide	7783-07-5	10
Hydrogen sulfide	7783-06-4	500
Hydroquinone ⁵	123-31-9	500/10,000 ²
Iron, pentacarbonyl- [Iron carbonyl (Fe(CO) ₅), (TB-5-11)-]	13463-40-6	100
Isobenzan	297-78-9	100/10,000 ²
Isobutane [Propane, 2-methyl]	75-28-5	10,000
Isobutyronitrile	78-82-0	1,000
Isocyanic Acid, 3,4-DichlorophenylEster	102-36-3	500/10,000 ²
Isodrin	465-73-6	100/10,000 ²
Isopentane [Butane, 2-methyl-]	78-78-4	10,000
Isophorone Diisocyanate	4098-71-9	100
Isoprene [1,3-Butadiene, 2-methyl-]	78-79-5	10,000
Isopropyl chloride [Propane, 2-chloro-]	75-29-6	10,000
Isopropyl chloroformate [Carbonochloridic acid, 1-methylethylester]	108-23-6	1,000
Isopropylamine [2-Propanamine]	75-31-0	10,000
Leptophos	21609-90-5	500/10,000 ²
Lewisite ¹	541-25-3	10
Lindane	58-89-9	1,000/10,000 ²
Lithium Hydride ³	7580-67-8	100
Malononitrile	109-77-3	500/10,000 ²
Manganese, Tricarbonyl Methylcyclopentadienyl ¹	12108-13-3	100
Mechlorethamine ¹	51-75-2	10
Mercuric Acetate	1600-27-7	500/10,000 ²
Mercuric Chloride	7487-94-7	500/10,000 ²
Mercuric Oxide	21908-53-2	500/10,000 ²
Methacrylonitrile [2-Propenenitrile, 2-methyl-]	126-98-7	500
Methacryloyl Chloride	920-46-7	100
Methacryloyloxyethylisocyanate	30674-80-7	100
Methamidophos	10265-92-6	100/10,000 ²
Methane	74-82-8	10,000
Methanesulfonyl Fluoride	558-25-8	1,000
Methidathion	950-37-8	500/10,000 ²
Methiocarb	2032-65-7	500/10,000 ²
Methomyl	16752-77-5	500/10,000 ²
Methoxyethylmercuric Acetate	151-38-2	500/10,000
Methyl Bromide	74-83-9	1,000
2-Methyl-1-butene	563-46-2	10,000
3-Methyl-1-butene	563-45-1	10,000
Methyl chloride [Methane, chloro-]	74-87-3	10,000
Methyl 2-Chloroacrylate	80-63-7	500
Methyl chloroformate [Carbonochloridic acid, methylester]	79-22-1	500
Methyl ether [Methane, oxybis-]	115-10-6	10,000
Methyl formate [Formic acid, methyl ester]	107-31-3	10,000
Methyl Hydrazine	60-34-4	500
Methyl isocyanate [Methane, isocyanato-]	624-83-9	500
Methyl Isothiocyanate ³	556-61-6	500
Methyl Mercaptan	74-93-1	500

Chemical Name	CAS No.	Threshold Quantity (lbs)
Methylmercuric Dicyanamide	502-39-6	500/10,000 ²
Methyl Phosphonic Dichloride ³	676-97-1	100
Methyl Thiocyanate	556-64-9	10,000
Methyltrichlorosilane	75-79-6	500
Methylamine [Methanamine]	74-89-5	10,000
2-Methylpropene [1-Propene, 2-methyl-]	115-11-7	10,000
Methyl Vinyl Ketone	78-94-4	10
Metolcarb	1129-41-5	100/10,000 ²
Mexacarbate	315-18-4	500/10,000 ²
Mitomycin C	50-07-7	500/10,000 ²
Monocrotophos	6923-22-4	10/10,000 ²
Muscimol	2763-96-4	500/10,000 ²
Mustard Gas ¹	505-60-2	500
Nickel carbonyl	13463-39-3	1
Nicotine Sulfate	65-30-5	100/10,000 ²
Nitric Acid	7697-37-2	1,000
Nitric oxide [Nitrogen oxide (NO)]	10102-43-9	100
Nitrobenzene ¹	98-95-3	10,000
Nitrogen Dioxide	10102-44-0	100
Norbormide	991-42-4	100/10,000 ²
Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide]	8014-95-7	10,000
Organorhodium Complex (PMN-82-147)	MIXTURE	10/10,000 ²
Ouabain	630-60-4	100/10,000 ²
Oxamyl	23135-22-0	100/10,000 ²
Ozone	10028-15-6	100
Paraquat Dichloride	1910-42-5	10/10,000 ²
Paraquat Methosulfate	2074-50-2	10/10,000 ²
Parathion-Methyl	298-00-0	100/10,000 ²
Paris Green	12002-03-8	500/10,000 ²
Pentaborane	19624-22-7	500
Pentadecylamine	2570-26-5	100/10,000 ²
Pentane	109-66-0	10,000
1-Pentene	109-67-1	10,000
2-Pentene, (E)-	646-04-8	10,000
2-Pentene, (Z)-	627-20-3	10,000
Peracetic acid [Ethaneperoxoic acid]	79-21-0	500
Perchloromethylmercaptan [Methanesulfonyl chloride, trichloro-]	594-42-3	500
Phenol	108-95-2	500/10,000 ²
Phenol, 2,2'-Thiobis(4-Chloro-6-Methyl)-	4418-66-0	100/10,000 ²
Phenol, 3-(Methylethyl)-, Methylcarbamate	64-00-6	500/10,000 ²
Phenoxarsine, 10, 10' - Oxydi-	58-36-6	500/10,000 ²
Phenyl Dichloroarsine ¹	696-28-6	500
Phenylhydrazine Hydrochloride	59-88-1	1,000/10,000 ²
Phenylmercury Acetate	62-38-4	500/10,000 ²
Phenylsilatrane	2097-19-0	100/10,000 ²
Phenylthiourea	103-85-5	100/10,000 ²
Phorate ¹	298-02-2	10
Phosacetim	4104-14-7	100/10,000 ²
Phosfolan	947-02-4	100/10,000 ²
Phosgene [Carbonic dichloride]	75-44-5	10
Phosmet	732-11-6	10/10,000 ²
Phosphine	7803-51-2	500
Phosphonothioic Acid, Methyl-, S-(2-(Bis(1-Methylethyl)Amino)Ethyl)O-Ethyl Ester. ¹	50782-69-9	100
Phosphorus ³	7723-14-0	100

Chemical Name	CAS No.	Threshold Quantity (lbs)
Phosphorus oxychloride [Phosphoryl chloride]	10025-87-3	500
Phosphorus Pentachloride ²	10026-13-8	500
Phosphorus Trichloride	7719-12-2	1,000
Physostigmine	57-47-6	100/10,000 ²
Physostigmine, Salicylate (1:1)	57-64-7	100/10,000 ²
Picrotoxin	124-87-8	500/10,000 ²
Piperidine	110-89-4	1,000
Potassium Arsenite	10124-50-2	500/10,000 ²
Potassium Cyanide ³	151-50-8	100
Potassium Silver Cyanide ³	506-61-6	500
Promecarb	2631-37-0	500/10,000 ²
Propadiene [1,2-Propadiene]	463-49-0	10,000
Propane	74-98-6	10,000
Propargyl Bromide	106-96-7	10
Propiolactone, Beta- ¹	57-57-8	500
Propionitrile	107-12-0	500
Propiophenone, 4-Amino-	70-69-9	100/10,000 ²
Propyl Chloroformate	109-61-5	500
Propylene [1-Propene]	115-07-1	10,000
Propylene Oxide	75-56-9	10,000
Propyleneimine [Aziridine, 2-methyl-]	75-55-8	10,000
Propyne [1-Propyne]	74-99-7	10,000
Prothoate	2275-18-5	100/10,000 ²
Pyrene	129-00-0	1,000/10,000 ²
Pyridine, 4-Amino	504-24-5	500/10,000 ²
Pyridine, 4-Nitro-, 1-Oxide	1124-33-0	500/10,000 ²
Pyriminil	53558-25-1	100/10,000 ²
1,3-Pentadiene	504-60-9	10,000
Salcomine	14167-18-1	500/10,000 ²
Sarin ¹	107-44-8	10
Selenious Acid	7783-00-8	1,000/10,000 ²
Semicarbazide Hydrochloride	563-41-7	1,000/10,000 ²
Silane	7803-62-5	10,000
Sodium Arsenate	7631-89-2	1,000/10,000 ²
Sodium Arsenite	7784-46-5	500/10,000 ²
Sodium Azide (Na (N3)) ²	26628-22-8	500
Sodium Cacodylate	124-65-2	100/10,000 ²
Sodium Cyanide (Na (CN)) ³	143-33-9	100
Sodium Fluoroacetate	62-74-8	10/10,000 ²
Sodium Selenate	13410-01-0	100/10,000 ²
Sodium Selenite	10102-18-8	100/10,000 ²
Sodium Tellurite	10102-20-2	500/10,000 ²
Stannane, Acetoxytriphenyl-	900-95-8	500/10,000 ²
Strychnine	57-24-9	100/10,000 ²
Strychnine Sulfate	60-41-3	100/10,000 ²
Sulfur Dioxide	7446-09-5	500
Sulfur tetrafluoride [Sulfur fluoride (SF4), (T-4)-]	7783-60-0	100
Sulfuric Acid ⁶	7664-93-9	1,000
Sulfur Trioxide ³	7446-11-9	100
Tabun ¹	77-81-6	10
Tellurium Hexafluoride	7783-80-4	100
Tetrafluoroethylene [Ethene, tetrafluoro-]	116-14-3	10,000
Tetramethyllead [Plumbane, tetramethyl-]	75-74-1	100
Tetramethylsilane [Silane, tetramethyl-]	75-76-3	10,000
Tetranitromethane	509-14-8	500
Thallium Sulfate	10031-59-1	100/10,000 ²
Thallos Carbonate	6533-73-9	100/10,000 ²

Chemical Name	CAS No.	Threshold Quantity (lbs)
Thallous Chloride	7791-12-0	100/10,000 ²
Thallous Malonate	2757-18-8	100/10,000 ²
Thallous Sulfate	7446-18-6	100/10,000 ²
Thiocarbazine	2231-57-4	1,000/10,000 ²
Thiofanox	39196-18-4	100/10,000 ²
Thiosemicarbazide	79-19-6	100/10,000 ²
Thiourea, (2-Chlorophenyl)-	5344-82-1	100/10,000 ²
Thiourea, (2-Methylphenyl)-	614-78-8	500/10,000 ²
Titanium tetrachloride [Titanium chloride (TiCl ₄) (T-4)-]	7550-45-0	100
Toluene 2, 4-Diisocyanate ⁷	584-84-9	500
Toluene 2, 6-Diisocyanate ⁷	91-08-7	100
Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-]	26471-62-5	10,000
Triamphos	1031-47-6	500/10,000 ²
Trichloro(Chloromethyl)Silane	1558-25-4	100
Trichloro(Dichlorophenyl)Silane	27137-85-5	500
Trichlorosilane [Silane, trichloro-]	10025-78-2	10,000
Triethoxysilane	998-30-1	500
Trifluorochloroethylene [Ethene, chlorotrifluoro-]	79-38-9	10,000
Trimethylamine [Methanamine, N,N-dimethyl-]	75-50-3	10,000
Trimethylchlorosilane [Silane, chlorotrimethyl-]	75-77-4	1,000
Trimethylolpropane Phosphite	824-11-3	100/10,000 ²
Trimethyltin Chloride	1066-45-1	500/10,000 ²
Triphenyltin Chloride	639-58-7	500/10,000 ²
Tris(2-Chloroethyl)Amine ¹	555-77-1	100
Valinomycin	2001-95-8	1,000/10,000 ²
Vanadium Pentoxide	1314-62-1	100/10,000 ²
Vinyl Acetate Monomer	108-05-4	1,000
Vinyl acetylene [1-Buten-3-yne]	689-97-4	10,000
Vinyl chloride [Ethene, chloro-]	75-01-4	10,000
Vinyl ethyl ether [Ethene, ethoxy-]	109-92-2	10,000
Vinyl fluoride [Ethene, fluoro-]	75-02-5	10,000
Vinyl methyl ether [Ethene, methoxy-]	107-25-5	10,000
Vinylidene chloride [Ethene, 1,1-dichloro-]	75-35-4	10,000
Vinylidene fluoride [Ethene, 1,1-difluoro-]	75-38-7	10,000
Warfarin	81-81-2	500/10,000 ²
Warfarin Sodium	129-06-6	100/10,000 ²
Xylylene Dichloride	28347-13-9	100/10,000 ²
Zinc, Dichloro(4,4-Dimethyl-5((((Methylamino)Carbonyl)Oxy)Imino)Pentanenitrile)-(T-4)-.	58270-08-9	100/10,000 ²
Zinc Phosphide ³	1314-84-7	500

END NOTES

- ¹ Substances that failed the evaluation pursuant to Health and Safety Code (H&S) §25532(g)(2) but remain listed pursuant to potential health impacts. The exemption in the California Code of Regulations (CCR), Title 19, Division 2, Chapter 4.5, Article 8, §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.
- ² These extremely hazardous substances are solids. The lesser quantity listed applies only if in powdered form and with a particle size of less than 100 microns; or if handled in solution or in molten form; or the substance has an NFPA rating for reactivity of 2, 3, or 4. Otherwise, a 10,000 pound threshold applies. The exemption in CCR § 2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.
- ³ These extremely hazardous substances are reactive solids. The exemption in CCR §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.
- ⁴ Appropriate synonyms or mixtures of extremely hazardous substances with the same CAS number are also regulated, e.g., formalin. The listing of ammonia includes anhydrous and aqueous forms of ammonia pursuant to H&S §25532(g)(2).
- ⁵ Hydroquinone is exempt in crystalline form.
- ⁶ Sulfuric acid fails the evaluation pursuant to H&S §25532(g)(2) but remains listed as Regulated Substance only under the following conditions:
 - c. If concentrated with greater than 100 pounds of sulfur trioxide or the acid meets the definition of oleum. (The threshold for sulfur trioxide is 100 pounds and the threshold for oleum is 10,000 pounds.)
 - d. If in a container with flammable hydrocarbons (flash point <73° F).
- ⁷ The exemption in CCR §2770.2(b)(1)(B) regarding portions of a process where these regulated substances are handled at partial pressures below 10 mm Hg does not apply to these substances.

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South Coast Air Quality Management District

21865 E. Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • <http://www.aqmd.gov>

PLAN ISSUE DATE:

xx/xx/xx

COMPANY I.D. #: XXXXXX

MITIGATION PLAN #: XXXXXX

Company: NAME
ADDRESS
CITY, STATE ZIP CODE

Site: ADDRESS

Attn: CONTACT NAME

Phone (XXX) XXX-XXXX Fax (XXX) XXX-XXXX

SITE SPECIFIC RULE 1166 CONTAMINATED SOIL MITIGATION PLAN

Reference is made to your Application (A/N XXXXXX) for the excavation and handling of VOC-contaminated soil **starting at (SITE ADDRESS)**. In accordance with Rule 1166 (c), this plan is required prior to commencing excavation of any underground storage tank or transfer piping which has previously been used to store or transfer volatile organic compounds (VOC) and during the excavation, handling, or storage of VOC-contaminated soils.

The rights and privileges granted through the issuance of this plan are restricted exclusively to the plan holder to whom it was issued, and are non-transferable, even with the written or expressed consent of the plan holder listed above.

This plan has been approved under the provisions of Rule 1166 of the Rules and Regulations of the AQMD and is subject to the following conditions.

PLAN CONDITIONS:

SECTION I - GENERAL REQUIREMENTS

1. THIS EXCAVATION PLAN SHALL EXPIRE UPON COMPLETION (DATE PROVIDED BY APPLICANT.)
2. A SIGNED COPY OF THIS PLAN SHALL BE PRESENT AT EACH EXCAVATION SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
3. THIS PLAN IS NOT VALID FOR THE EXCAVATION OF VOC CONTAMINATED SOILS AT LANDFILLS OR SITES USED FOR DISPOSAL OF REFUSE OR OTHER TYPES OF WASTE.

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- 4 THIS PLAN SHALL NOT BE USED IN CONJUNCTION WITH ANY ON SITE TREATMENT PROCESS, WITHOUT ADDITIONAL EVALUATION BY THE AQMD. THIS PLAN DOES NOT ALLOW THE TREATMENT OF VOC-CONTAMINATED SOIL BY THERMAL, CHEMICAL, OR MECHANICAL PROCESSES. ANY OF THE ABOVE TREATMENT PROCESSES REQUIRES A PERMIT TO OPERATE FROM THE AQMD.
- 5 THE TOTAL QUANTITY OF VOC-CONTAMINATED SOIL EXCAVATED UNDER THIS PLAN SHALL NOT EXCEED XXXXX CUBIC YARDS. AT NO TIME SHALL THE TOTAL QUANTITY OF VOC CONTAMINATED SOIL STOCKPILED AT THIS SITE EXCEED 2,000 CUBIC YARDS.
- 6 THE AQMD SHALL BE IMMEDIATELY NOTIFIED OF ANY COMPLAINTS RECEIVED AS A RESULT OF ACTIVITIES CONDUCTED UNDER THIS PLAN. SUCH NOTIFICATION SHALL INCLUDE THE NATURE OF THE COMPLAINT, NUMBER OF COMPLAINANTS AND THE ACTION TAKEN BY THE PLAN HOLDER TO MITIGATE THE SOURCE OF THE COMPLAINT.
- 7 DURING EACH STEP OF THE PROCESS UP TO AND INCLUDING THE REMOVAL AND DISPOSAL PROCESS, ALL PRECAUTIONS AND MEASURES SHALL BE TAKEN TO MINIMIZE THE RELEASE OF VOC, ODOR AND DUST. THIS INCLUDES BUT IS NOT LIMITED TO THE USE OF ADDITIONAL PLASTIC SHEETING OR SUPPRESSANTS ON EXPOSED SOIL SURFACES & WORK AREAS AND MAINTAINING PAVED PUBLIC STREETS FREE OF SOIL DEPOSITS.

SECTION II - PRIOR TO EXCAVATION

- 8 AT LEAST 24 HOURS PRIOR TO COMMENCING AT THE SITE/AREAS DESIGNATED FOR THIS PLAN, THE EXECUTIVE OFFICER OR DESIGNEE SHALL BE NOTIFIED BY TELEPHONE OF ALL INFORMATION ITEMS LISTED IN RULE 1166(c)(1)(B), THE NAME OF THE COMPANY PERFORMING THE EXCAVATION, AND THE APPLICATION NUMBER LISTED ON THIS MITIGATION PLAN. THE NOTIFICATION SHALL BE MADE BY FAXING THE NOTIFICATION FORM TO (909) 396-3342 OR CALLING (909) 396-2326, DURING NORMAL BUSINESS HOURS. FAX NOTIFICATIONS WILL RECEIVE A REFERENCE NUMBER BY RETURN FAX OR CAN BE OBTAINED FROM THE AQMD BY PHONE. THE REFERENCE NUMBER SHALL BE RETAINED AS PROOF OF COMPLIANCE WITH THIS REQUIREMENT.

REFERENCE NO: _____ NOTIFICATION DATE: _____

- 9 COMPLETE VERIFICATION INFORMATION IN CONDITION NO 30 AND OBTAIN REQUIRED SIGNATURES, PRIOR TO COMMENCING EXCAVATION.

SECTION III - EXCAVATION ACTIVITIES

- 10 DURING THE EXCAVATION PROCESS, AN ORGANIC VAPOR ANALYZER (OVA) SHALL BE ON SITE AT ALL TIMES. THE OVA SHALL BE MAINTAINED IN GOOD WORKING ORDER AT ALL TIMES AND SHALL BE CALIBRATED BY THE MANUFACTURER AT LEAST ONCE EVERY THREE MONTHS. THE CALIBRATION OF THE OVA SHALL BE VERIFIED USING CERTIFIED CALIBRATION GAS AT THE BEGINNING OF EACH WORKING DAY WITH THE PROCEDURES SPECIFIED BY THE MANUFACTURER. IF A CALIBRATION GAS OTHER THAN HEXANE IS USED, EACH MEASURED READING SHALL BE CORRELATED TO AND EXPRESSED AS HEXANE, USING EQUIVALENCY FACTORS PROVIDED BY THE MANUFACTURER. IN THE EVENT THAT INCONSISTENT OR ERRATIC READINGS ARE EXPERIENCED, OR THE OVA BECOMES OTHERWISE INOPERABLE, ALL EXCAVATION ACTIVITIES WILL CEASE UNTIL THE OVA IS REPAIRED OR REPLACED.
- 11 ALL MONITORING SHALL BE CONDUCTED AT A DISTANCE NO MORE THAN 3 INCHES ABOVE THE SOIL SURFACE USING AN OVA DESCRIBED IN CONDITION NO. 10 ABOVE. MONITORING SHALL BE INITIALLY CONDUCTED AT A MINIMUM FREQUENCY OF ONE READING EVERY FIFTEEN MINUTES. UPON DETECTION OF VOC CONTAMINATION, MONITORING SHALL BE CONDUCTED AT A MINIMUM RATE OF ONE READING FOR EVERY FIVE CUBIC YARDS EXCAVATED. ALL READINGS SHALL BE TAKEN NO LATER THAN THREE (3) MINUTES AFTER EACH LOAD OF SOIL IS EXCAVATED.

12. ALL MONITORING SHALL BE CONDUCTED BY TRAINED PERSONNEL WHO ARE PROFICIENT IN THE USE OF THE HYDROCARBON MONITOR SELECTED FOR USE AT THIS SITE.
13. WRITTEN RECORDS OF OVA MONITORING AND CALIBRATIONS REQUIRED ABOVE, SHALL BE KEPT IN A FORMAT APPROVED BY THE AQMD. THE APPROVED FORMAT IS INCLUDED ON PAGE 7 OF THIS PLAN. THE CERTIFICATION ON ALL RECORDS SHALL BE SIGNED AND DATED ON THE DAY THE MEASUREMENTS ARE OBSERVED.
14. UPON DETECTION OF VOC CONTAMINATED SOIL (READINGS 50 PPM OR GREATER), THE EXECUTIVE OFFICER OR DESIGNEE SHALL BE NOTIFIED WITHIN 24 HOURS OF THE FIRST DETECTION OF VOC CONTAMINATION. THE NOTIFICATION SHALL BE MADE BY FAXING THE NOTIFICATION FORM TO (909) 396-3342 OR CALLING (909) 396-2326. A REFERENCE NUMBER WILL BE FAXED BACK OR WILL BE ISSUED WHEN THE PHONE NOTIFICATION IS RECEIVED. ALL PHONE NOTIFICATIONS SHALL BE FOLLOWED BY MAILING THE NOTIFICATION FORM TO THE DISTRICT POSTMARKED WITHIN 48 HOURS. THE REFERENCE NUMBER WILL BE RETAINED AS PROOF OF COMPLIANCE WITH THIS REQUIREMENT.

REFERENCE NO: _____ NOTIFICATION DATE: _____

15. ALL VOC-CONTAMINATED SOIL SHALL BE STOCKPILED SEPARATELY FROM NON-VOC-CONTAMINATED SOIL
16. A VOC-CONTAMINATED STOCKPILE SHALL NOT CONTAIN MORE THAN 500 CUBIC YARDS OF SOIL.
17. IF THE OVA MEASUREMENT SPECIFIED IN CONDITION NO. 11 IS GREATER THAN 50 PPMV, BUT LESS THAN 1000 PPMV,
 - A) THE AFFECTED WORK AREA AND LOAD OF SOIL SHALL BE SPRAYED WITH WATER AND/OR APPROVED VAPOR SUPPRESSANT
 - B) CONTAMINATED SOIL IN STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING WHICH OVERLAP A MINIMUM OF TWENTY FOUR INCHES AND ARE SECURED SO THAT NO PORTION OF THE CONTAMINATED SOIL IS EXPOSED TO THE ATMOSPHERE. IN THE COURSE OF HANDLING THE STOCKPILE, ONLY THE WORKING FACE OF THE STOCKPILE MAY BE UNCOVERED.
18. IF THE OVA MEASUREMENT SPECIFIED IN CONDITION NO. 11 EQUALS OR IS GREATER THAN 1000 PPMV,
 - A) THE AFFECTED SOIL AND WORKING AREA SHALL BE SPRAYED WITH WATER OR AN APPROVED VAPOR SUPPRESSANT, AND EITHER:
 - B) THE CONTAMINATED SOIL EXCAVATED WILL BE IMMEDIATELY PLACED IN AQMD APPROVED SEALED CONTAINERS, EQUIPPED WITH VAPOR TIGHT LIDS; OR,
 - C) THE SOIL EXCAVATED WILL BE DIRECTLY LOADED IN TRUCKS, MOISTENED WITH ADDITIONAL WATER, COVERED, AND TRANSPORTED IMMEDIATELY OFF SITE TO AN APPROVED TREATMENT FACILITY, OR,
 - D) BY OTHER ALTERNATIVE STORAGE METHODS WITH PRIOR WRITTEN APPROVAL FROM THE AQMD.

~~SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--~~

19. DURING EXCAVATION, THE ONLY EXPOSED VOC CONTAMINATED SOIL SHALL BE RESTRICTED TO THE IMMEDIATE WORKING AREA OF THE STOCKPILE ONLY. ALL OTHER PORTIONS OF THE STOCKPILE SHALL BE COVERED WITH PLASTIC SHEETING, WITH SEAMS WHICH OVERLAP A MINIMUM OF TWENTY-FOUR (24) INCHES AND ARE SECURED WITH DUCT TAPE. ANY EXPOSED VOC-CONTAMINATED SOIL SURFACES (WORK FACE) SHALL BE KEPT MOIST WITH WATER OR OTHER APPROVED SUPPRESSANTS AT ALL TIMES, AND SHALL BE RECOVERED DURING PERIODS OF INACTIVITY LONGER THAN ONE (1) HOUR. AT THE END OF EACH WORKING DAY, ALL STOCKPILES SHALL BE COMPLETELY COVERED AND SECURELY ANCHORED TO PREVENT ANY EXPOSURE OF SOIL TO THE ATMOSPHERE.
20. ONCE COVERED WITH PLASTIC SHEETING, STOCKPILE SHALL BE DISTURBED FOR SAMPLING PURPOSES ONLY, OTHERWISE, ALL VOC-CONTAMINATED STOCKPILES SHALL REMAIN COVERED AND UNDISTURBED UNTIL BACKFILLED OR REMOVED FROM THE SITE.
21. IN THE EVENT THAT ANALYTICAL RESULTS FROM THE SAMPLING OF VOC-CONTAMINATED STOCKPILES INDICATE ONLY THE PRESENCE OF COMPOUNDS MEETING THE EXEMPTION(S) STATED IN RULE 1166(d)(1), THE PLAN HOLDER SHALL SUBMIT ALL PERTINENT INFORMATION TO THE AQMD FOR REVIEW. ALL SUSPECT STOCKPILES SHALL CONTINUE TO BE HANDLED AS VOC CONTAMINATED UNTIL THE EXEMPTION CAN BE CONFIRMED BY THE AQMD.
22. DAILY INSPECTIONS SHALL BE CONDUCTED OF ALL COVERED VOC-CONTAMINATED STOCKPILES TO ENSURE THE INTEGRITY OF THE PLASTIC COVER. SUCH INSPECTIONS SHALL INCLUDE A VISUAL INSPECTION OF ALL SEAMS AND PLASTIC COVER SURFACES. ANY HOLES, TEARS OR ANY OTHER POTENTIAL SOURCES OF FUGITIVE VOC EMISSIONS SHALL BE REPAIRED IMMEDIATELY. DAILY RECORDS SHALL BE MAINTAINED TO ENSURE COMPLIANCE WITH THIS CONDITION
23. VOC-CONTAMINATED SOIL SHALL NOT BE SPREAD ON-SITE OR OFF-SITE. THIS INCLUDES ANY UNNECESSARY MOVEMENT OR AGITATION OF SOIL THAT MAY CAUSE THE UNCONTROLLED EVAPORATION OF VOCs INTO THE ATMOSPHERE, INCLUDING THE RESHAPING OR RELOCATING OF STOCKPILES
24. A WRITTEN REPORT SHALL BE GENERATED WHICH INCLUDES:
 - A) THE FACILITY SELECTED TO TREAT THE VOC-CONTAMINATED SOIL, QUANTITY OF SOIL REMOVED FROM SITE, STATUS OF EXCAVATION PIT, AND ANY VOC-CONTAMINATED SOIL REMAINING ON SITE
 - B) A BRIEF SUMMARY INDICATING IF ADDITIONAL CLEAN UP EFFORTS ARE NECESSARY, THE ADDITIONAL QUANTITY OF VOC CONTAMINATED SOILS TO BE EXCAVATED AND THE PROJECTED SCHEDULE OF THE EXCAVATION.
25. ALL VOC-CONTAMINATED SOIL SHALL BE REMOVED FROM THE SITE WITHIN THIRTY (30) DAYS OF ITS EXCAVATION

~~SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--~~

26. ALL VOC-CONTAMINATED SOIL REMOVED FROM THE SITE SHALL COMPLY WITH THE FOLLOWING:
- A) BE TRANSPORTED TO AN APPROVED TREATMENT/DISPOSAL FACILITY. IT SHALL BE THE RESPONSIBILITY OF THE PLAN HOLDER TO ENSURE THAT THE RECEIVING TREATMENT/DISPOSAL FACILITY HAS RECEIVED APPROVAL FROM THE APPROPRIATE ENVIRONMENTAL OVERSIGHT AGENCIES TO HANDLE AND TREAT VOC CONTAMINATED SOILS.
 - B) WHEN LOADING IS COMPLETED AND DURING TRANSPORTATION, NO EXCAVATED MATERIAL SHALL EXTEND ABOVE THE SIDES OR REAR OF THE TRUCK OR TRAILER.
 - C) PRIOR TO COVERING/TARPING, LOADED CONTAMINATED SOIL SHALL BE WETTED BY SPRAYING WITH MIST INHIBITORS.
 - D) THE TRUCK OR TRAILER SHALL BE COMPLETELY COVERED/TARPED PRIOR TO LEAVING THE SITE TO PREVENT PARTICULATED EMISSIONS TO THE ATMOSPHERE.
 - E) THE EXTERIOR OF THE TRUCKS (INCLUDING THE TIRES) SHALL BE CLEANED OFF PRIOR TO THE TRUCKS LEAVING THE EXCAVATION SITE.
27. RECORDS OF TREATMENT/DISPOSAL SHALL BE MAINTAINED FOR ALL VOC-CONTAMINATED SOIL REMOVED FROM THIS SITE. SUCH RECORDS SHALL BE CLEARLY LABELED "SCAQMD RULE 1166 - VOC-CONTAMINATED SOIL" AND SHALL INCLUDE THE IDENTIFICATION AND THE LOCATION OF: THE GENERATOR, THE TRANSPORTER AND THE RECEIVING FACILITY. IN ADDITION, SUCH RECORDS SHALL BE SIGNED AND DATED BY EACH OF THE ABOVE PARTIES INDICATING RECEIPT OR RELINQUISHMENT OF THE VOC-CONTAMINATED SOIL AT THE TIME CUSTODY IS TRANSFERRED
28. RECORDS OF DISPOSAL/TREATMENT OF VOC-CONTAMINATED SOIL SHALL BE MAINTAINED FOR A PERIOD OF TWO (2) YEARS AND MADE AVAILABLE TO AQMD PERSONNEL UPON REQUEST.
29. WITHIN FORTY (40) DAYS OF INITIAL DETECTION OF VOC-CONTAMINATION, THE WRITTEN RECORDS UNDER CONDITIONS NO. 13, 22, 24, AND 27 SHALL BE SUBMITTED TO THE AQMD AT THE FOLLOWING ADDRESS:
- SOUTH COAST AIR QUALITY MGMT DISTRICT
STATIONARY SOURCE COMPLIANCE DIVISION
RULE 1166 TOXICS AND WASTE MANAGEMENT SECTION
21865 E. COPLEY DR.
DIAMOND BAR, CA. 91765-4182
30. THIS PLAN IS NOT VALID UNTIL ALL PARTIES HAVE REVIEWED AND SIGNED THE VERIFICATION STATEMENT BELOW.

~~SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--~~

Site Name		Type of Business	
Address	City	Zip	
Responsible Party (Owner/Operator)		Phone/Fax	
Address	City	Zip	

I CERTIFY THAT I HAVE REVIEWED AND UNDERSTAND THE CONDITIONS CONTAINED WITHIN THIS PLAN. IN SIGNING BELOW, I ACKNOWLEDGE THAT UNDER THE PROVISIONS OF RULE 1166, I CAN BE HELD RESPONSIBLE FOR THE REQUIREMENTS SET FORTH IN THIS PLAN.

Responsible Party	Responsible Party Signature	Date Signed
General Contractor	General Contractor Signature	Date Signed
Excavation Contractor	Excavation Contractor Signature	Date Signed
Environmental Consultant	Environmental Consultant Signature	Date Signed

DEFINITIONS

Organic Vapor Analyzer (OVA)

For the purposes of this plan, is an hydrocarbon monitor utilizing flame ionization, photo ionization or other analytical methods complying with 40 CFR PART 60 APPENDIX A, EPA METHOD 21 SECTION 3, "DETERMINATION OF VOLATILE ORGANIC COMPOUND LEAKS, MONITORING INSTRUMENT SPECIFICATIONS. The monitor shall be capable of being calibrated using hexane at a range of 0 parts per million by volume (PPMV) to 50 PPMV, and at a detection range of at least 30 PPMV to 1100 PPMV

Responsible Party

For the purposes of this plan, is the party financially responsible for initiating the excavation. This may include the property owner or the tank operator. This excludes contractors working for the property owner or operator, and any other party that lacks the direct authority to immediately treat all VOC contaminated soils generated at the excavation site.

VOC Contaminated Soil

Is a soil which registers a concentration of 50 PPM or greater of volatile organic compounds, when measured at a distance of no more than three inches from the surface of the excavated soil, with an organic vapor analyzer or equivalent (calibrated to hexane). If other calibration gases are used, then the measured readings are correlated to and expressed as hexane.

Volatile Organic Compound (VOC)

Any volatile compound of carbon, excluding methane, carbon monoxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds as defined in Rule 102 - Definitions of Terms.

~~SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--~~

Once issued, this plan is subject to further review by the AQMD and may be revoked if excavation activities are found in violation of plan conditions or AQMD's Rules and Regulations. Failure to comply with one or more of the conditions contained within this plan constitutes a violation of Rules 221 and 1166.

Other governmental agencies may require approval before any excavation begins. It shall be the responsibility of the applicant to obtain that approval. The South Coast Air Quality Management District shall not be responsible or liable for any losses because of measures required or taken pursuant to the requirements of this approved 1166 Contaminated Soil Mitigation Plan.

If you have any questions concerning this plan, please call Ranjit Vishwanath at (909) 396-2682.

Very truly yours,

David Jones
Air Quality Analysis & Compliance Supervisor

~~SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--SAMPLE--~~

Rule 1166 Soil Monitoring Records

COID: Company ID No. <Company> «Addno» «dir» «Streetname» «TYPE» «Suiteno» «City», «St», «Zip»	Facility/Site Information	
	Name:	
	Address:	
Reference No(s).	City:	Zip:

Monitor Information		Calibration Data	Monitoring Personnel	Excavation Summary (Upon completion of each page)	
Brand:	Gas:	Name:	Total Cubic Yds (This page)		
Model:	Date	Company:	Total Cubic Yds (To date)		
Type	By	Phone:	Removed from Site (To date)		

[illegible]

I certify that the information contained in the above document is true and correct. I further certify that the above listed hydrocarbon monitor was operated in a manner consistent with the manufacturer's specifications and the conditions specified within this plan. In addition, I certify that the above readings represent the actual measurements I observed and recorded during the excavation process.

SIGNATURE: _____

DATE: _____

INSTRUCTIONS FOR RULES 1149 AND 1166 NOTIFICATION FORM

AQMD requires notification for Tank Degassing (Rule 1149), Tank Excavation (Rule 1166), VOC-Soil Contamination of >50 ppm VOC, and VOC Site Mitigation.

NOTIFICATION TYPE: Check (✓) the appropriate box for the notification type. *A separate notification is required for each type of notification.*

SITE INFORMATION:

- Give the site name and address: number and street name, city, and zip code, and nearest cross street. Give more detailed directions, if you think the site is difficult to locate.
- Give the name of the owner/operator of the tank. Give the name and phone number of the contact person.
- Give the contractor's name, phone number, and fax number who is performing the degassing, excavation, handling of VOC-contaminated soil, and/or doing site mitigation.
- Give the project start and end dates, and expected start time.
- List each tank that will be degassed, cleaned, or excavated; specify its capacity in gallons, and the material stored in the tank. Also, identify if the tank is underground or above ground.

TANK DEGASSING NOTIFICATION ONLY:

- Give the name and phone number of the person in charge of the degassing/cleaning operation at the site.
- Give the company name to whom the degassing equipment permit is issued and the permit's AQMD number.

TANK EXCAVATION NOTIFICATION ONLY:

- Give the name and phone number of the person in charge of the excavation at the site.
- Give the name of the company to whom the Mitigation Plan is issued and the plan's AQMD number.
- An approved Mitigation Plan is required prior to any excavation of VOC transfer and storage equipment, and VOC contaminated sites.
- Monitor excavated soil for VOC contamination every 15 minutes and record all VOC concentrations.

VOC-CONTAMINATED SOIL NOTIFICATION ONLY:

- Give the name of the person in charge of monitoring at the site.
- Give the name of the company to whom the Mitigation Plan is issued and the Plan's AQMD number.
- Notify within 24 hours of detecting VOC soil contamination greater than 50 ppm.
- Implement an approved soil mitigation plan.

VOC SITE MITIGATION NOTIFICATION ONLY:

- Give the name of the person in charge of the soil excavation, decontamination, and/or vapor extraction at the site.
- Give the name of the company to whom the Site Mitigation permit is issued and the Permit's AQMD number.
- Any soil excavation > 5,000 cubic yards requires an approved Rule 403 Fugitive Dust Plan.

INFORMATION CERTIFICATION:

- The notification must be signed and submitted by the contractor doing the work, or an authorized representative.
- Use a "wet" or stamp signature to confirm that information given in the notification form is complete and accurate.

WHEN AND WHERE TO FAX YOUR NOTIFICATION: (909) 396-3342

- For tank degassing only, fax your notification at least 24 hours and no more than 10 days prior to the start date.
- For tank excavation only, fax your notification at least 24 hours prior to the start date.
- Fax a re-notification when VOC contamination of 50 ppm or greater is detected during excavation.
- For VOC site mitigation, fax a notification in accordance with the permit condition requirements.
- Always fax a re-notification if the start date of the project does not commence as initially notified.
- Always fax a copy of an agency Order or Emergency Declaration, and provide details of the emergency.

PHONE INQUIRIES:

- For phone inquiries or messages, dial (909) 396-2326.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

21865 E Copley Drive, Diamond Bar, CA 91765-4182

WWW.AQMD.GOV

- ☐ R1149 – TANK DEGASSING NOTIFICATION
☐ R1166 – TANK EXCAVATION NOTIFICATION
☐ R1166 – VOC-CONTAMINATED SOIL NOTIFICATION
☐ R1166 – VOC SITE MITIGATION NOTIFICATION

To notify, please fax this form to:
(909) 396-3342

This form will be faxed back to you with
the notification Reference Number.

For AQMD Use Only

REFERENCE NO.	RECEIVED			ENTERED		RE-NOTIFICATION		PRIOR REFERENCE NO.
	BY	DATE	TIME	BY	DATE	YES	NO	

SITE INFORMATION:

(TO BE COMPLETED FOR EVERY NOTIFICATION)

NAME:					
ADDRESS:			CROSS STREET		
CITY:			ZIP:		
NAME OF TANK OWNER/OPERATOR					
CONTACT PERSON:			PHONE:		
CONTRACTOR:		AQMD ID#		PHONE:	
START DATE:		TIME:		END DATE:	
FAX:					
# OF TANKS	EACH	CAPACITY (GAL)	MATERIAL STORED IN TANK	ABOVE GROUND?	
_____	@	_____	_____	Y/N	
_____	@	_____	_____	Y/N	
_____	@	_____	_____	Y/N	
_____	@	_____	_____	Y/N	
_____	@	_____	_____	Y/N	

TANK DEGASSING ONLY: PERSON IN CHARGE:	PHONE:
EQUIPMENT PERMIT ISSUED TO:	PERMIT AQMD#:

TANK EXCAVATION ONLY: PERSON IN CHARGE:	PHONE:
MITIGATION PLAN ISSUED TO:	PLAN AQMD#:

VOC-CONTAMINATED SOIL ONLY: PERSON IN CHARGE:	PHONE:	
HIGHEST READING (PPM):	DATE REGISTERED:	TIME:

VOC SITE MITIGATION ONLY: PERSON IN CHARGE:	PHONE:
MITIGATION PERMIT ISSUED TO:	PERMIT AQMD#:

IF EMERGENCY: GIVE THE DATE:	TIME:	OF THE EMERGENCY.
PERSON WHO DECLARED THE EMERGENCY:	PHONE:	
(FOR AN EMERGENCY ORDER OR DECLARATION, FAX A COPY).		

COMMENTS:

INFORMATION CERTIFICATION: I certify that the above information is complete and accurate.			
Company Name	Print name	Signature	Date

NOTE: If you need to call please dial (909) 396-2326

R1149-1166not.doc

REV990813

**California Regional Water Quality Control
Board, Santa Ana Region Letter to the
Department of the Navy**

17 August 2001



Winston H. Bickox
Secretary for
Environmental
Protection

California Regional Water Quality Control Board Santa Ana Region

Internet Address: <http://www.swrcb.ca.gov/rwqcb8>
3737 Main Street, Suite 500, Riverside, California 92501-3348
Phone (909) 782-4130 • FAX (909) 781-6288



Gray Davis
Governor

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website at www.swrcb.ca.gov/rwqcb8.

August 17, 2001

Mr. M. Good
Department of the Navy
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

REQUEST FOR REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs) FOR IR SITES 73 (WATER TOWER AREA) AND SWMU 24 (STATIONARY DEMILITARIZATION FURNACE), NAVAL WEAPONS STATION, SEAL BEACH

Dear Mr. Good:

On June 25, 2001, we received your requests for ARARs for a proposed non-time critical removal action at Sites 73 and SWMU 24 at NWS Seal Beach, in compliance with Section 121 (d) (2) (A) of CERCLA and the National Contingency Plan 40 CFR Section 300.400 (g) and 300.515(d) and (h). The following is a list of our ARARs:

- **Water Quality Control Plan Santa Ana River Basin 1995 (Basin Plan)**

Citation: Chapter 3, Beneficial Uses

Description: Defines beneficial uses for groundwater beneath NWS Seal Beach as municipal, agricultural, industrial service and industrial process supply.

Comments: The identification of the groundwater as a potential drinking water source forms a basis for selection of concentration limits, cleanup levels and treatment levels.

ARAR Status: Applicable, Action

Citation: Chapter 4, Water Quality Objectives

Description: Defines the groundwater quality objectives for non-degradation, taste and odor, bacteria, chemical constituents, toxic substances, radioactivity and minerals.

Comments: Applies to all cleanups of discharges that may affect water quality.

California Environmental Protection Agency



Recycled Paper

Mr. Good

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August 17, 2001

ARAR Status: Applicable, Action, Chemical

- **Statement of Policy with Respect to Maintaining High Quality of Waters in California**

Citation: State Water Resources Control Board Resolution No. 68-16

Description: Establishes policy on maintaining the high quality of California's surface waters and groundwater.

Comments: Applies to discharges of waste to waters of the State, including discharges to soil that may affect surface or groundwater. In-situ cleanup levels for contaminated soils must be set so that groundwater will not be degraded, unless degradation is consistent with the maximum benefit to the people of the State. If degradation is allowed, the discharge must meet standards for best practical treatment or control, and must result in the highest water quality possible, consistent with the maximum benefit to the people of the State. In no case may water quality objectives be exceeded.

ARAR Status: Applicable, Action, Chemical, Location

- **Sources of Drinking Water Policy**

Citation: State Water Resources Control Board Resolution No. 88-63 and Regional Board Resolution No. 89-42.

Description: Defines all groundwater and surface waters as existing or potential sources of drinking water, with a few specified exceptions (these exceptions are specified in Chapter 3, Beneficial Uses of the Basin Plan).

Comments: The identification of the groundwater beneath Site 73 and SWMU 24 as potential sources of drinking water provides information to determine concentration limits, cleanup levels and treatment levels.

ARAR Status: Applicable, Location

- **Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under the Water Code Section 13304**

Citation: State Water Resources Control Board Resolution No. 92-49 (as Amended April 21, 1994 and October 2, 1996).

Description: Requires the investigation, cleanup and abatement to extend to any location affected by a discharge or threatened discharge, and sets policies and procedures for all investigations and cleanup and abatement activities.

California Environmental Protection Agency



Recycled Paper

Mr. Good

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August 17, 2001

Comments: These policies and procedures are applicable to investigations and remedial activities at Sites 73 and SWMU 24.

ARAR Status: Applicable, Action, Chemical, and Location

• **Porter-Cologne Water Quality Control Act 1998**

Citation: California Water Code Section 13000

Description: Defines the legislative intent to attain the highest water quality reasonable, considering all demands being made.

Comments: Basis for selection of background levels as the goal for cleanup criteria.

ARAR Status: Applicable, Action

Citation: California Water Code Section 13176

Description: Requires that the analysis of material be performed in a State-certified laboratory.

Comments: Applies to all investigations and remedial actions.

ARAR Status: Applicable, Action

Citation: California Water Code Chapter 4, Article 4

Description: Requires the submission of information regarding waste discharges, and states that requirements shall be placed to implement water quality control plans. Technical or monitoring reports may be required for investigation of water quality. Provides for penalties for noncompliance.

Comments: Removal and remedial actions must comply with substantive requirements.

ARAR Status: Applicable, Action, Chemical, Location

Citation: California Water Code Chapter 5, Article 1

Description: Requires cleanup and abatement of conditions of pollution or nuisance or threatened pollution or nuisance.

Comments: Applies to all investigation and remedial actions.

ARAR Status: Applicable, Action

California Environmental Protection Agency



Recycled Paper

Mr. Good

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August 17, 2001

Citation: California Water Code, Chapter 10, Article 3

Description: Specifies the requirements for water wells, monitoring wells, and cathodic protection wells.

Comments: Applies to all well installations.

ARAR Status: Applicable, Action

Citation: California Water Code Sections 13240, 13241, 13242, 13243

Description: Establishes water quality objectives, including narrative and numerical standards, that protect the beneficial uses of surface waters and groundwater in the Region. Describes control measures designed to ensure compliance with State plans and policies, and provides comprehensive water quality planning. Includes implementation actions for setting soil cleanup levels for soils that threaten water quality.

Comments: Any activity, including a new discharge of contaminated soils or containment of contaminated soils, that may affect water quality must not result in exceeding water quality objectives. Implementation plans and other policies and requirements may apply.

ARAR Status: Applicable, Action

• **Discharges of Waste to Land**

Citation: California Code of Regulations, Title 27, Section 20090(d)

Description: Actions taken by public agencies to cleanup unauthorized releases are exempt from Title 27, except that wastes removed from immediate place of release and discharged to land must be managed in accordance with classification and siting requirements of CCR Title 27 (Sections 20200 and 20240), and wastes contained or left in place must comply with Title 27 to the extent feasible.

Comments: Applies to remediation and monitoring of sites.

ARAR Status: Applicable, Action

Citation: California Code of Regulations, Title 27, Section 20410

Description: Requires monitoring for compliance with remedial action objectives for three years from the date of achieving cleanup levels.

Comments: Applies to all soil cleanup activities.



Mr. Good

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August 17, 2001

ARAR Status: Relevant and Appropriate, Action

Citation: California Code of Regulations, Title 27, Section 20430

Description: Requires implementation of corrective action measures that ensure that cleanup levels are achieved throughout the zone affected by the release by removing the waste constituents or treating them in place. Source control may be required. Also requires monitoring to determine the effectiveness of the corrective actions.

Comments: If water quality is threatened or adversely impacted, this section applies to all soil cleanup activities.

ARAR Status: Relevant and Appropriate, Action

Citation: California Code of Regulations, Title 27, Sections 20200(c) and 20210

Description: Requires that designated waste be discharged to Class I or Class II waste management units.

Comments: Applies to discharges of designated waste (non-hazardous waste that could cause degradation of surface or ground water) to land for treatment, storage, or disposal.

ARAR Status: Applicable, Action

Citation: California Code of Regulations, Title 27, Section 20230

Description: Specifies that inert waste does not need to be discharged at classified units.

ARAR Status: Applicable, Action

Citation: California Code of Regulations, Title 27, Sections 20200(c), 20220

Description: Requires that non-hazardous solid waste be discharged to a classified waste management unit.

Comments: Applies to discharges of non-hazardous solid waste to land for treatment, storage or disposal.

ARAR Status: Applicable, Action

Mr. Good

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August 17, 2001

• **Storm Water Activities**

Citation: 40 CFR, Parts 122, 123, 124, National Pollutant Discharge Elimination System, implemented by California Storm Water Permit for Industrial Activities, State Water Resources Control Board Order No. 97-03-DWQ

Description: Regulates pollutants in discharge of storm water associated with hazardous waste treatment, storage, and disposal facilities, wastewater treatment plants, landfills, land application sites, and open dumps. Contains requirements to ensure that storm water discharges do not contribute to a violation of surface water quality standards. Regulates pollutants in discharge of storm water associated with construction activity (clearing, grading, or excavation) involving the disturbance of five acres or more.

Comments: Applies to storm water discharges from industrial areas. Includes measures to minimize and/or eliminate pollutants in storm water discharges, and specifies monitoring and reporting requirements to demonstrate compliance. Applies to construction areas over five acres in size.

ARAR Status: Applicable, Action

If you should have any questions regarding the details of the ARARs listed in this letter, please call me at (909) 782-4498 or send e-mail to phannon@rb8.swrcb.ca.gov.

Sincerely,



Patricia A. Hannon
SLIC/DoD/AGT Section

cc: Ms. Pei-Fen Tamashiro, Naval Weapons Station, Seal Beach
Ms. Katherine Leibel, Dept of Toxic Substances Control
Mr. Si Le, Naval Facilities Engineering Command, SWDIV
Mr. John Bradley, Seal Beach National Wildlife Refuge



**The Department of the Navy Follow-Up
Request to Various Agencies**

15 October 2001



DEPARTMENT OF THE NAVY
SOUTHWEST DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
1220 PACIFIC HIGHWAY
SAN DIEGO, CA 92132-5190

5090
Ser 5NEN.SL/659
15 OCT 01

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

To: Interested Parties

Pursuant to the Federal Facility Site Remediation Agreement (FFSRA) for Seal Beach Naval Weapons Station, Section 7.7 (C), we request your office identify potential chemical-specific, location-specific and action specific Applicable or Relevant and Appropriate Requirements (ARARs) for proposed non-time critical removal actions at Site 73 (water tower area), and Solid Waste Management Unit (SWMU) 24 (station demilitarization furnace), Naval Weapons Station, Seal Beach. The Department of Toxic Substances Control (DTSC) sent a letter to your office in July 2001 requesting ARARs for Site 73 and SWMU 24. However, your office did not respond to DTSC's request. Therefore, the Navy is required per the FFSRA to solicit ARARs from non-responding agencies directly.

To expedite the removal process, the Department of the Navy (DoN) is requesting action-specific ARARs along with the chemical-specific and location-specific ARARs. Enclosure (1) is a summary of background information for non-time critical removal action at Site 73 and SWMU 24 to help you with this effort.

In addition, the DoN is requesting your office to identify any other criteria, advisories, guidance, and proposed standards that your agency requests be considered for the above-identified installation restoration (IR) sites.

The DoN is requesting timely identification of potential ARARs consistent with Section 121 (d) (2) (A) of CERCLA and the National Contingency Plan 40 CFR SS300.400 (g) and 300.515(d) &(h). Experience to date around the country has shown that a failure to identify ARARs with sufficient precision, early in the process, can cause severe disruptions in timely implementation of removal actions. To ensure timely and complete ARARs identification, for the IR sites listed above, please include the following information:

1. A specific citation to the statutory or regulatory provision(s) for the potential ARAR and the date of enactment or promulgation.
2. A brief description of why the potential ARAR is applicable or relevant and appropriate to the particular IR site.
3. A description of how the potential ARAR would apply to potential remedial action, including: specific numeric discharge, effluent, or emission limitations; hazardous substance/constituent action or cleanup levels; etc., if your office intends to take the position that the potential ARAR includes such limitations, levels, etc.

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4. If your office believes its proposed ARAR is more stringent than the corresponding Federal ARAR, please provide the rationale and technical justification for this position.

5. If your office determines that there is not enough information to fully respond to our request, please identify any additional information that would be required to support identification of ARARs and their application.

Consistent with 40 CFR S300.515 (h) (2), we are requesting that you send a response via first class mail addressed to me and postmarked within 30 calendar days of receipt of this request. Please direct any technical questions concerning this request to Si Le at (619) 532-1235 and any legal questions to Marc Rosen, Associate Counsel (Environmental), at (619) 532-1662.

Sincerely,



M. R. GOOD

By direction of the Commander

Enclosure (1): Summary of Background Information for Non-Time Critical Removal
Action at IR Site 73 and SWMU 24, Naval Weapons Station, Seal Beach

Distribution:

Mr. Jim Raives
Federal Consistency Coordinator
California Coastal Commission
45 Freemont Street, Suite 2000
Sacramento, CA 94105

Ms. Penny Leinwander
Department of Health Services
P.O. Box 942732
Sacramento, CA 94234

Ms. Karen Hodel
Orange County Health Care Agency
2009 Edinger Avenue
Santa Ana, CA 92705

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Mr. James Colston
Orange County Sanitation District
P.O. Box 8127
Fountain Valley, CA 92728-8127

Mr. William R. Mills, Jr
Orange County Water District
P.O. Box 8300
Fountain Valley, CA 92728-8300

Mr. Lee Whitenberg
City of Seal Beach
Planning Department
211 8th Street
Seal Beach, CA 90740

South Coast Air Quality Management District
21865 E. Copley Drive
Diamond Bar, CA 91765

Copy to (w/o encl.):
Commanding Officer (Code 045)
Attn: Ms. Pei-Fen Tomashiro
Naval Weapons Station, Seal Beach, Bldg 110
800 Seal Beach Boulevard
Seal Beach, CA 90740-5000

Mr. Robert Schilling
Naval Weapons Station Seal Beach
Bechtel Field Office (trailer southeast of Bldg. 112)
800 Seal Beach Blvd.
Seal Beach, CA. 90740-5000

SUMMARY OF BACKGROUND INFORMATION FOR NON-TIME-CRITICAL REMOVAL ACTION AT IR SITE 73 AND SWMU 24 NAVAL WEAPONS STATION SEAL BEACH

The following information is provided to assist the Navy and state regulatory agencies in early identification of chemical-, location-, and action-specific applicable or relevant and appropriate requirements (ARARs) to support the engineering evaluation/cost analyses (EE/CAs) for soil at Installation Restoration (IR) Program Site 73 and Solid Waste Management Unit (SWMU) 24, Naval Weapons Station (NAVWPNSTA) Seal Beach.

As part of the EE/CAs for these sites, potential non-time-critical removal actions will be evaluated with consideration given to the nine criteria stipulated in the National Oil and Hazardous Substances Pollution Contingency Plan: overall protection of human health and the environment; compliance with ARARs; long-term effectiveness; reduction of toxicity, mobility, or volume through treatment; short-term effectiveness; implementability; cost; state acceptance; and community acceptance.

NAVWPNSTA Seal Beach, located about 30 miles south of the Los Angeles urban center, consists of about 5,000 acres of land located on the Pacific Coast. NAVWPNSTA Seal Beach is part of the Commander Navy Region Southwest, and its major claimant is the Commander-In-Chief Pacific Fleet. The Station provides fleet combatants with ready-for-use ordnance. Because of its geographic location, the Station serves as a supply point for the operating Navy and Marine Corps forces in the southern California region.

IR Site 73 – Water Tower

IR Site 73 is the area under and surrounding the Station water tower. Since its construction around 1944, the water tower has been periodically painted and sandblasted an unknown number of times. The most recent painting took place around 1994. Previous painting activities resulted in a release of sandblast paint chips to the area surrounding the water tower.

As shown on the Site Location Map and IR Site 73 Base Map below, the site is located east of Seal Beach Boulevard, south of the Main Gate, and southwest of Building 206. The site falls within a known archeological site, CA-ORA-322/1,118; and, in 1997, an archaeological investigation documented by Ogden reconfirmed the significance of the site's cultural resources.

RISK SCREENING RESULTS FOR IR SITE 73

The chemicals of potential concern (COPCs) at IR Site 73 are metals and semi-volatile organic compounds (SVOCs). Human health risk screening for soils at IR Site 73 was performed as part of a Focused Site Inspection (FSI). The screening compared the soil analytical data with stationwide upper limit background values (ULBVs) and residential preliminary remediation goals (PRGs), and estimated the excess lifetime cancer risk (ELCR) and non-cancer hazard quotient (HQ) for each COPC. The 95 percent upper confidence limit (UCL) concentration of metals in soil at the site yielded an ELCR of 2×10^{-9} and a non-cancer hazard index (HI) of 0.7. The ELCR associated with the SVOCs in soil is 1×10^{-5} , primarily as a result of polynuclear aromatic hydrocarbon (PAH) benzo(a)pyrene. The non-cancer HI is less than 0.1 for SVOCs at IR Site 73.

Based on the ecological risk screening performed as part of the FSI, ecologically significant risks to terrestrial receptors exist from metals in soil. Safe ecological PRGs for most receptors are exceeded by the 95 percent UCL concentrations of lead. The maximum concentrations of metals in soils, primarily lead, exceed the lowest safe PRGs for the receptors selected at the site. Lead is the primary contributor to ecological risks at the site.

Most of the PAH compounds (except the most volatile) were detected in soil at IR Site 73. However, maximum concentration of anthracene, benzo(a)pyrene, and dibenzo(a,h)anthracene did not exceed safe ecological PRGs for any receptor. Therefore, PAHs do not contribute to the risks to ecological receptors at IR Site 73.

POTENTIAL REMOVAL ACTION ALTERNATIVES FOR IR SITE 73

Removal action alternatives being considered for evaluation in the IR Site 73 EE/CA range from no action, partial removal of impacted soil, to complete removal of impacted soil. Soil removal would be followed by disposal.

Depending on the removal action goals developed during the EE/CA, the area of impacted soil subject to removal action may range from approximately 600 square yards to in excess of 5,000 square yards. The depth of the removal area is expected to range from 1 to 3 feet. Therefore, the volume of impacted soil subject to a removal action could range from 200 to 5,000 cubic yards. Since IR Site 73 is known to contain cultural resources, the volume of soil subject to removal action and/or disturbance will be limited to the maximum extent practicable.

SWMU 24 – Stationary Demilitarization Furnace

Prior to its decommissioning in 1998, SWMU 24 housed the stationary demilitarization furnace facility (SDFF). The SDFF was used primarily from 1985 to 1994 for the removal of explosive residue from expended munitions. When it was decommissioned in 1998, the structures were demolished and removed; and the areas known to contain residual quantities of hazardous materials were decontaminated. After the demolition of the SDFF, the area was graded.

SWMU 24 is located in the center of the Station south of Westminster Street, bounded by Building 95 to the west and agricultural fields to the east and south, as shown in the Site Location Map and SWMU 24 Base Map below.

RISK SCREENING RESULTS FOR SWMU 24

The COPCs at SWMU 24 are metals. Human health risk screening for soils at SWMU 24 was performed as part of an FSI. The screening compared the soil analytical data with stationwide ULBVs and residential PRGs, and estimated the ELCR and HQ for each COPC. The total ELCR for metals in soil, based on 95 percent UCL concentrations, is 1×10^{-8} . The HI for metals at the site is 1.0. Therefore, there are no significant human-health risks from metals at the site.

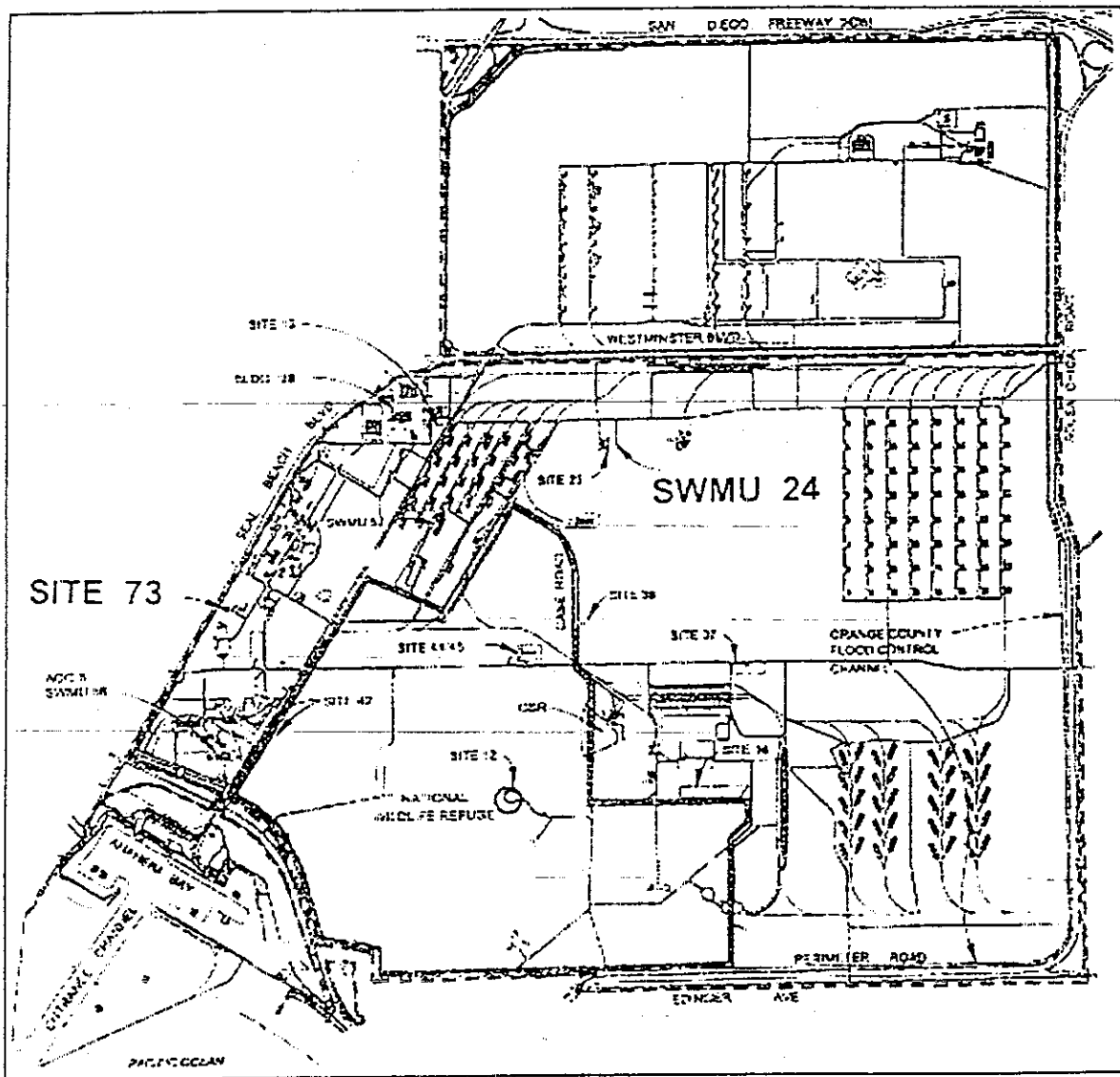
Based on the ecological risk screening performed as part of the FSI, there are significant risks to terrestrial receptors from metals in soil. Safe ecological PRGs for most receptors are exceeded by the arithmetic mean concentrations of lead. The maximum

concentrations of metals in soils, primarily lead and copper, exceed the lowest safe PRG for the receptors selected at the site. These metal exceedances occurred predominantly within two localized areas.

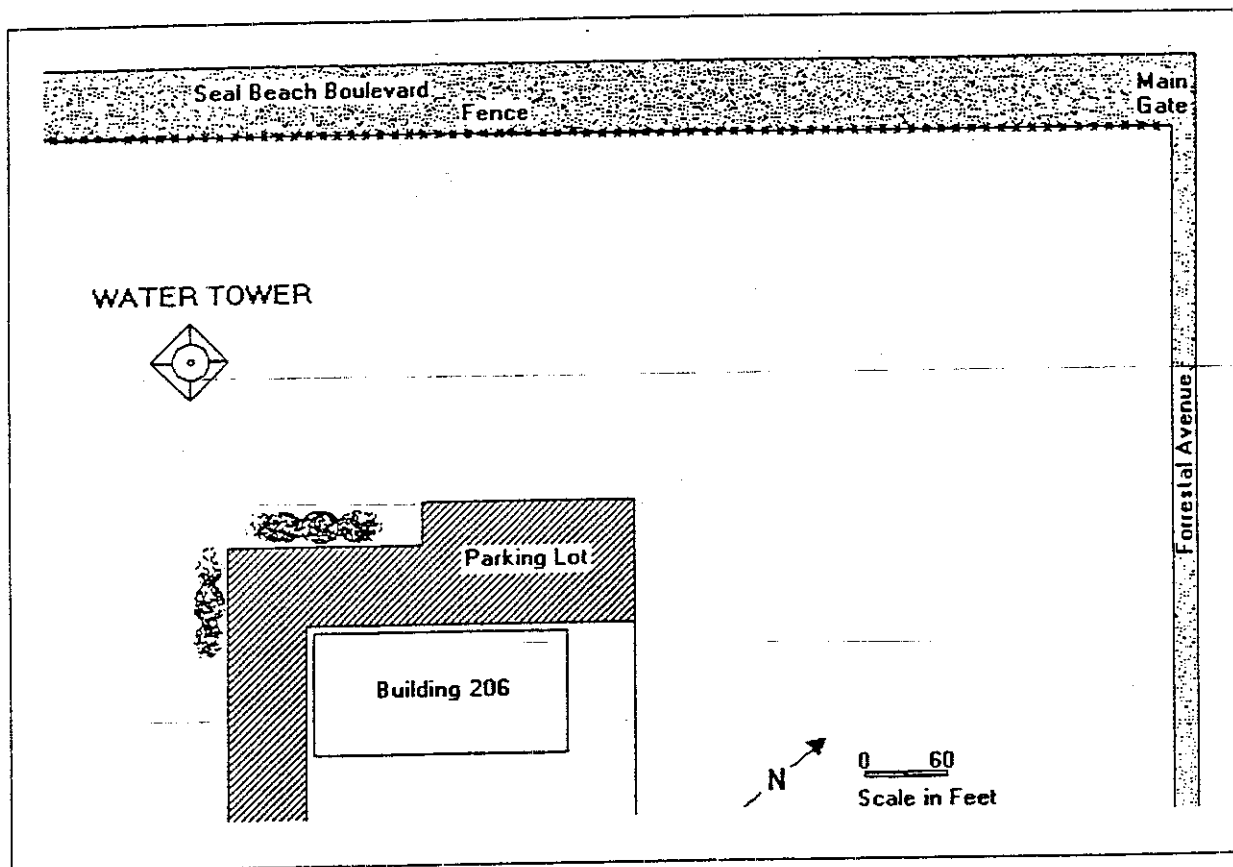
POTENTIAL REMOVAL ACTION ALTERNATIVES FOR SWMU 24

Removal action alternatives being considered for evaluation in the SWMU 24 EE/CA range from no action, partial removal of impacted soil, to complete removal of impacted soil. Soil removal would be followed by disposal. Another possible removal action alternative for this site is consolidation. Under consolidation, the surface area of impacted soil at the site would be reduced by up to a third of the original surface area. Placement of a cover may also be considered.

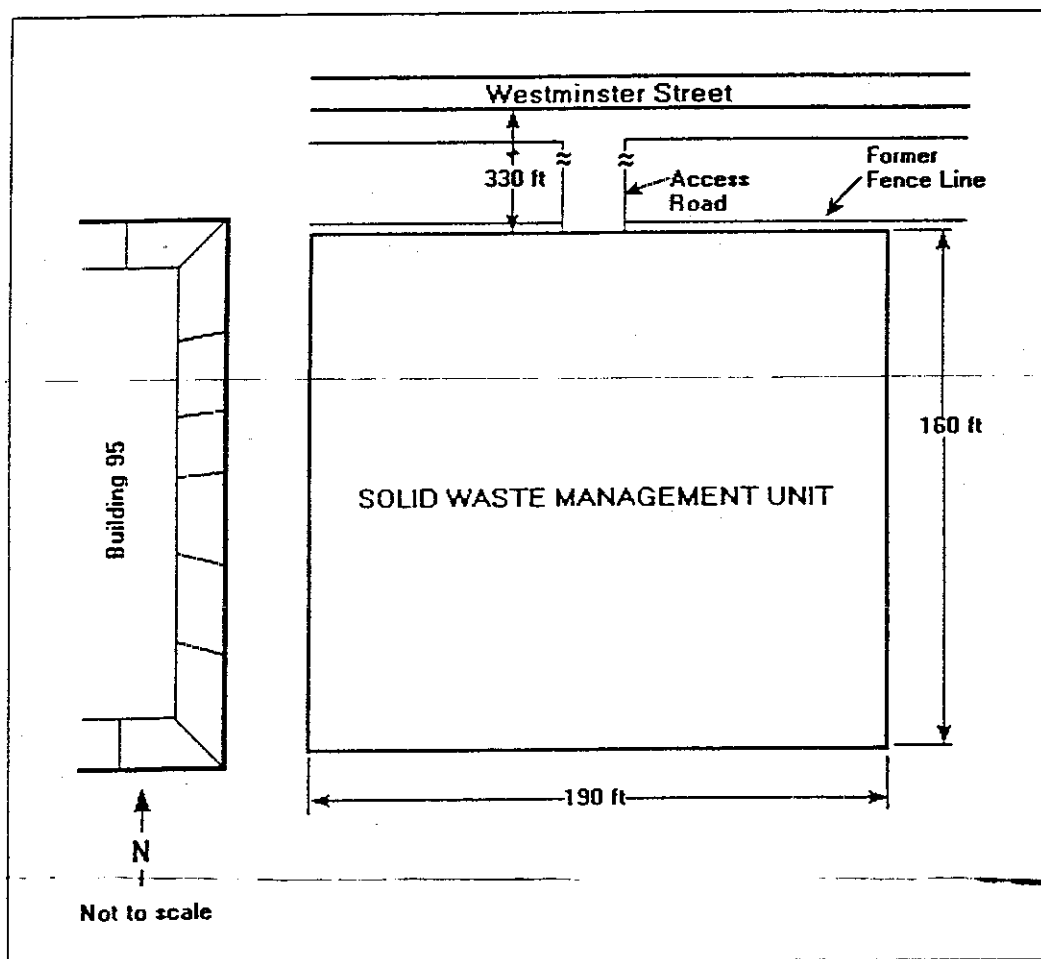
For SWMU 24, the area of impacted soil subject to a removal action could range from approximately 200 square yards to nearly 1,500 square yards, depending on the removal action goals developed during the EE/CA. With the exception of one soil sample collected from 2 to 2.5 feet below ground surface, the majority of lead concentrations significantly above the stationwide ULBV lead concentration was reported in surface soil samples only. Therefore, the depth of the removal area is expected to be approximately 1 foot below ground surface resulting in an estimated soil volume of 70 to 500 cubic yards.



Site Location Map



IR Site 73 Base Map



SWMU 24 Base Map

**California Coastal Commission Letter to the
Department of the Navy**

22 October 2001

CALIFORNIA COASTAL COMMISSION

45 FREMONT STREET, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE AND TDD (415) 904-5200



October 22, 2001

M.R. Good
Department of the Navy
Southwest Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

Re: ARARs, Seal Beach Naval Weapons Station

Dear Mr. Good:

In response to your letter to our agency of October 15, 2001, we did not respond to the request for ARARs because it limited the request to chemical-specific, location-specific and action specific ARARs. Historically our comments to ARAR requests is to identify our agency's general procedural requirements and focus mostly on the impacts on coastal resources and uses from cleanup activities.


To clarify applicable Coastal Commission authority, please note the provisions of Section 307 of the federal Coastal Zone Management Act (CZMA) (16 U.S.C. Section 1456, with implementing regulations at 15 CFR Part 930). The CZMA requires that activities on federal land, such as Navy cleanup operations at the Seal Beach Naval Weapons Station, that have the potential to affect the coastal zone may trigger the need for a consistency or negative determination, depending on the potential impact of any particular cleanup activity. We do not have specific (i.e., chemical, location and action specific) requirements; rather the Commission's review focuses on coastal effects from the clean-up activities, (e.g. impacts to sensitive habitat from cleanup or associated activities). Procedurally, we ask that you coordinate the cleanup activities with us to determine whether a consistency or negative determination is needed. Substantively, any requirements that cleanup projects would need to be consistent with are those found in Chapter 3 of the Coastal Act (see attachment for most likely applicable policies).

Please note that if a consistency determination needs to be submitted for this activity, it should include a finding as to whether the project is consistent to the maximum extent practicable with the California Coastal Management Program and the necessary information to support that conclusion, including an analysis of the project's consistency with Chapter 3 of the Coastal Act. (See CFR Section 930.39 for a full listing of the information required for a complete consistency

Page 2

determination.) If you have any questions about the need for or preparation of a consistency or negative determination, please contact James Raives, federal consistency coordinator for the Commission staff, at (415) 904-5289.

Sincerely,



MARK DELAPLAINE
Federal Consistency Supervisor

cc: Long Beach District Office
James Raives

Attachment

Applicable Chapter 3 Policies
California Coastal Act

PUBLIC ACCESS

Section 30210.

In carrying out the requirement of Section 4 of Article X of the California Constitution, maximum access, which shall be conspicuously posted, and recreational opportunities shall be provided for all the people consistent with public safety needs and the need to protect public rights, rights of private property owners, and natural resource areas from overuse.

MARINE ENVIRONMENT

Section 30230.

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231.

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams

Section 30232.

Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Section 30233.

(a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

Page 4

(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland. The size of the wetland area used for boating facilities, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, shall not exceed 25 percent of the degraded wetland.

(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.

(5) Incidental public service purposes, including but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable long shore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division

For the purposes of this section, "commercial fishing facilities in Bodega Bay" means that not less than 80 percent of all boating facilities proposed to be developed or improved, where such improvement would create additional berths in Bodega Bay, shall be designed and used for commercial fishing activities.

(d) Erosion control and flood control facilities constructed on water courses can impede the movement of sediment and nutrients which would otherwise be carried by storm runoff into coastal waters. To facilitate the continued delivery of these sediments to the littoral zone, whenever feasible, the material removed from these facilities may be placed at appropriate points on the shoreline in accordance with other applicable provisions of this division, where feasible mitigation measures have been provided to minimize adverse environmental effects. Aspects that shall be considered before issuing a coastal development permit for such purposes are the method of placement, time of year of placement, and sensitivity of the placement area.

LAND RESOURCES

Section 30240.

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Section 30251.

The scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas, to minimize the alteration of natural land forms, to be visually compatible with the character of surrounding areas, and, where feasible, to restore and enhance visual quality in visually degraded areas. New development in highly scenic areas such as those designated in the California Coastline Preservation and Recreation Plan prepared by the Department of Parks and Recreation and by local government shall be subordinate to the character of its setting.

**Orange County Sanitation District Letter to
the Department of the Navy**

31 October 2001

ORANGE COUNTY SANITATION DISTRICT

October 31, 2001

M. R. Good
Department of the Navy
South West Division
Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

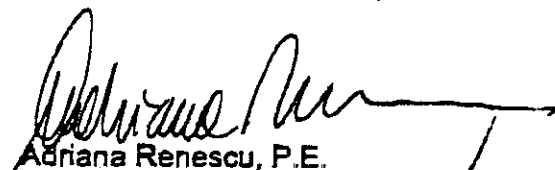
SUBJECT: ARARs Request

In response to your request to identify applicable Orange County Sanitation District's (District) requirements regarding the removal actions at Site 73 and SWMU 24, Seal Beach Naval Weapon Station, Seal Beach, California, we are enclosing our Wastewater Discharge Regulations that outline the District's requirements in case of your need to discharge to the sewerage system. Should discharge to the sewerage system be necessary, the District needs to be notified immediately in order to determine permitting and monitoring requirements and to provide the applicable authorization and permits to discharge.

For your information, in August, 2000 I provided similar information to Katherine Leibel, Remedial Project Manager.

Also, please be advised that the contact for the District is no longer James Colston but the undersigned.

If you have any questions please feel to call me at (714) 593-7435.


Adriana Renescu, P.E.
Engineering Supervisor

AR:hk

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APPENDIX C

SUPPORTING COST INFORMATION

TABLE OF CONTENTS

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ACRONYMS/ABBREVIATIONS

EE/CA	engineering evaluation/cost analysis
O&M	operation and maintenance
RACER 2001	Remedial Action Cost Engineering and Requirements 2001 System
UPB	Unit Price Book
U.S. EPA	United States Environmental Protection Agency

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Appendix C

SUPPORTING COST INFORMATION

The cost estimate presented in this Engineering Evaluation/Cost Analysis (EE/CA) was developed according to guidance in the National Oil and Hazardous Substance Pollution Contingency Plan and the Remedial Action Costing Procedures Manual (U.S. EPA 1987) using the Remedial Action Cost Engineering and Requirements 2001 (RACER 2001) System developed by the United States Environmental Protection Agency (U.S. EPA) and the United States Air Force, and cost information from other site assessment and removal/remedial activities conducted at Naval Weapons Station Seal Beach. A description of the RACER cost system is provided below.

C1 DESCRIPTION OF RACER

RACER cost models are based on generic engineering solutions for environmental projects, technologies, and processes. The generic engineering solutions were derived from historical project information, government laboratories, construction management agencies, vendors, contractors, and engineering analysis. RACER 2001 incorporates the most technologically up-to-date engineering practices and procedures to accurately reflect today's removal/remediation processes and pricing. When an estimate is developed in RACER 2001, generic engineering solutions are tailored by adding site-specific parameters to reflect the project-specific conditions and requirements. The tailored plan is then translated into specific quantities of work items priced using the current cost data. The RACER assembly cost database was developed from the United States Army Corps of Engineers Unit Price Book (UPB) and supplemented by vendor and contractor quotes. RACER 2001 incorporates and summarizes cost by the code of accounts that was developed by the interagency Cost Estimating Group for Hazardous, Toxic and Radiological Waste Remediation.

RACER 2001 costs are location-specific, using factors to modify costs in the database for the site-specific geographic location. Included with the direct cost is an estimate for professional labor support to this removal action. This support is calculated on the basis of the technology being used and covers the costs associated with construction oversight and preparation of work plans (e.g., Safety and Health Plan, Quality Assurance Project Plan). Indirect cost estimates for the removal action include items such as sales tax, contractor overhead, contractor profit, bonds, and insurance costs.

The cost estimates have a ± 30 percent accuracy and are escalated from January 2001 to the midpoint of the project using escalation rates from the Remediation Cost Escalation Table published by the Office of the Secretary of Defense. Cost estimates prepared for this EE/CA can increase during the design and/or implementation phases as a result of unforeseen conditions or items not reflected in the conceptual plans. Contingency has been added to the total direct and indirect capital costs and escalation has been added at a rate of 20 percent to cover cost increases that may occur as a result of these unforeseen conditions or changes.

C2 COST-ESTIMATE COMPONENTS

Cost estimates for the removal action alternatives include direct and indirect capital costs and operation and maintenance (O&M) costs, if applicable. Direct capital costs may include detailed design/engineering (removal design), construction, construction materials, revegetation, direct labor, equipment, removal action oversight (removal action professional labor), and maintenance and reporting. Indirect capital costs may include contractor general conditions, prime and subcontractor overhead and profit, taxes, bonds and insurance, prime contractor home office costs, and overhead associated with professional labor. O&M costs include site inspections, maintenance, auxiliary materials, administration, and purchased services, operating labor, postclosure maintenance, energy costs, environmental monitoring, testing and analysis, and postclosure site inspections.

Total direct and indirect costs for estimated capital and O&M costs are escalated in an Microsoft® Excel spreadsheet cost summary at a rate of 3 percent per year based on January 2001 costs. The escalated costs are shown to present actual future costs based on today's dollar.

C3 NET PRESENT WORTH

Present worth analysis is a method of evaluating expenditures that occur over different time periods. The costs for different removal action alternatives can be compared on the basis of a single figure for each alternative by discounting all costs to a common base year. This single figure—the present worth or value of a project—represents the amount of money that, if invested in the initial year of the removal action and disbursed as needed, would be sufficient to cover all the costs associated with the alternative.

The present value of expenditures occurring over the life of the removal action is determined using the following equation:

$$PW = \sum_{t=1}^{t=n} \frac{x_t}{(1+i)^t}$$

where

PW = present worth

t = year in which expenditure occurs following construction

n = the number of years following the start of construction (assumed July 2002)
through the completion of any postclosure monitoring and maintenance period

x_t = expenditures for the removal action in year t

i = net annual discount rate (7 percent discount rate [U.S. EPA 1993] minus
3 percent escalation rate equals net 4 percent discount rate)

The net present worth of each alternative is calculated by adding the capital costs to the net present worth of the O&M annual expenditures priced as of July 2002 (including indirect costs and contingencies). Because the alternatives may be completed at different

Appendix C Supporting Cost Information

times, the net present worth has been calculated for each alternative based on the prime rate (7 percent). Interest was compounded monthly.

The following assumptions were made for calculating present worth:

- inflation or escalation rate – 3 percent per year for the duration of O&M annual expenditures
- discount rate – 7 percent
- net discount rate – 4 percent
- period of performance – (project duration) years including construction

C4 GENERAL ASSUMPTIONS

The following general assumptions were made to develop the cost estimate.

- Installation of capital equipment will be implemented in July 2002, and the capital cost expenditure will be committed by October 2001.
- There are no O&M costs.
- The site is generally accessible. Specialized equipment will be required to complete the work.
- Work plan preparations, safety and health plan, technical oversight during planning, and implementation of work are included in the cost for professional labor. Level D personal protective equipment was assumed for the professional labor/removal action oversight costs for all alternatives.
- Contingencies are 20 percent of direct capital cost, indirect capital cost, and O&M costs.

C5 REFERENCES

United States Environmental Protection Agency. 1987. Remedial Action Costing Procedures Manual. EPA/600/8-87/049, as amended by EPA 540-R-00-002 dated July 2000.

———. 1993. Revision to OMB Circular A-94 on Guidelines and Discount Rates for Benefit-Cost Analysis. Office of Solid Waste and Emergency Response (OSWER), Directive No. 9355. 3-20. Washington, DC. 25 June.

U.S. EPA. See United States Environmental Protection Agency.

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APPENDIX D

RESPONSES TO COMMENTS

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Katherine Leibel, California Department of Toxic Substances Control
Dated: 18 January 2002
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
1.	<i>The Department of Toxic Substance Control (DTSC) has reviewed the subject document prepared by Bechtel National, Inc., for the Department of the Navy, Southwest Division, Naval Facilities Engineering Command. Upon review, the Department of Toxic Substance Control concurs with the proposed removal action alternative and the Ecological Preliminary Remediation Goal of 317 mg/kg as the cleanup objective for lead.</i>	The EE/CA presented a lead cleanup goal of 400 mg/kg. However, based on comments by Department of Toxic Substances Control Human and Ecological Risk Division, the Navy proposes to modify the cleanup goal from 400 mg/kg to 317 mg/kg. The value of 317 mg/kg, based on the American robin model, retains all of the conservative factors included in the risk assessment. It is protective of all the wildlife receptors evaluated at the site, including the snowy plover.
2.	<i>Please note that the lead cleanup goal of 317 mg/kg is for current land use. For now, DTSC requires lead cleanup goal to be 130 mg/kg for residential land use.</i>	Section 3.2, 1 st paragraph, last sentence will be replaced with: "The removal action alternatives considered in this EE/CA should result in the site becoming suitable for a determination that no further response action for CERCLA compliance is appropriate at IR Site 73 for the current land use. However, it is difficult to predict the future land use of this site. Naval Weapons Station Seal Beach is not slated for closure or changes in land use. The Navy will use the Base Master Plan to track and control changes in land use and determine the need for reassessment of human health and/or ecological risk should the land use change. In addition, the National Environmental Policy Act (NEPA) review process is in place to determine if a site is adequate to be used for any purpose other than its current use. Should the planned usage of IR Site 73 change in the future, analysis and documentation of historical land use and cleanup activities will be conducted in accordance with the NEPA provisions." Section 7, 3 rd paragraph, 2 nd sentence will be deleted.

Note:

* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

RESPONSES TO COMMENTS* DRAFT ENGINEERING EVALUATION/COST ANALYSIS NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73 NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA		
Comments by: James M. Polisini, Ph.D., California Department of Toxic Substances Control, Human and Ecological Risk Division (HERD) Dated: 16 January 2002 (received 11 February 2002) Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc. Date: 12 March 2002		
Number	Comment	Response
GENERAL COMMENTS		
	<i>The proposed cleanup concentration for the American Robin was the most applicable for the type of habitat at Site 73. HERD was able to duplicate the calculation of the proposed 317 mg/kg cleanup goal for lead based on ecological hazard to American Robin. Herd recommends this concentration as the soil cleanup goal for Site 73 based on site-specific considerations.</i>	The Navy proposes to modify the cleanup goal from 400 mg/kg to 317 mg/kg. The value of 317 mg/kg, based on the American robin model, retains all of the conservative factors included in the risk assessment. It is protective of all the wildlife receptors evaluated at the site, including the snowy plover. See response to Department of Fish and Game Office of Spill Prevention and Response Comment No. 3 for calculation of a snowy plover PRG.
SPECIFIC COMMENTS		
1. <i>The maximum and mean concentration reported for dibenzofuran (Table 2-1, page 2-16) do not appear logical. Please explain how it is possible to have a maximum concentration of dibenzofuran reported as 250 µg/kg with a J qualifier reported in 1 of 102 samples result in a mean concentration of 200 µg/kg. The mean for one sample cannot be less than the maximum.</i>	The data used in the summary statistics (Table 2-1) in the EE/CA were copied from Table 5-14 of the draft Focused Site Inspection (FSI) Phase II Report (CH2M Hill 2000). Appendix H of the FSI Phase II lists the assumptions that were made to perform the statistical analysis of the data. Page H-5, assumption 7 reads: "When the analytes were not detected, the arithmetic means, standard deviation, and 95 percent UCL were calculated by assuming that the analyte was detected at half the method detection limit." Table 5-14 of the FSI Phase II shows that the method detection limit ranged from 350 to 850 µg/kg for dibenzofuran. This indicates that half the method detection limit value would have ranged from 175 to 425 µg/kg. Depending on the distribution of these values, the mean value could be 200 µg/kg, which is less than the only detected value of 250 J µg/kg. Reference: CH2M Hill. 2000. Draft Focused Site Inspection Phase II Report, Naval Weapons Station, Seal Beach, California. Volumes 1 and 2. 18 December.	

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: James M. Polisini, Ph.D., California Department of Toxic Substances Control, Human and Ecological Risk Division (HERD)
Dated: 16 January 2002 (received 11 February 2002)
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
2.	<i>Antimony is reported as non-detect in 113 samples (Table 2-1, page 2-16). Please report the method detection limits for those compounds and elements which are not detected in all samples in order to assess whether the detection limits are adequate for risk assessment.</i>	Two columns will be added to Table 2-1 that will list the minimum and maximum method detection limits for all compounds. In addition, Table 2-1 will be revised to include the mean concentration calculated in the FSI Phase II for those analytes where there were no samples with reported concentrations above the detection limit.
3.	<i>Please coordinate the preparation of the work plan prepared to outline the removal and confirmation sampling program for lead (Section 3.2, page 3-2) with HERD prior to delivery of the draft work plan.</i>	The removal action contractor (RAC) will be notified of HERD's request to coordinate the preparation of the project work plan prior to delivery of the draft work plan.
4.	<i>The list of Agencies and Trustees requested to provide Applicable and Relevant or Appropriate Regulations (ARARs) (Section 3.4.1, page 3-3) does not include the U.S. Fish and Wildlife Service (USFWS), the Resource Trustee managing the NWR. The USFWS should be notified of all actions and investigations which might impact the NWR.</i>	The agencies and trustees requested to provide applicable or relevant and appropriate requirements (ARARs) that appear in Section 3.4.1 include only <u>state</u> agencies (not federal). California Department of Toxic Substances Control (DTSC) was responsible for identifying these state agencies. The DON is the lead federal agency and is responsible for identification of federal ARARs. The USFWS is aware of the proposed removal action and was provided with a copy of the draft EE/CA Summary.
5.	<i>The lead uptake factor of 0.0093 from soil to plants was checked and is the average uptake factor developed for Sites 1 and 7 (Appendix A, Section A2.2, page A-18). This is a site-specific value developed for NWS Seal Beach.</i>	Comment noted.
6.	<i>Given the landscaped lawn, lack of quality habitat at this site, lack of rare, threatened or endangered (RTE) species and distance from the National Wildlife Refuge (NWR), HERD will accept the 25 percent bioavailability proposed (Maddaloni, et al. 1998) based on human ingestion when fasting or after a meal (Appendix A, Section A2.2,</i>	Comment noted.

<p style="text-align: center;">RESPONSES TO COMMENTS* DRAFT ENGINEERING EVALUATION/COST ANALYSIS NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73 NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA</p>		
<p>Comments by: James M. Polisini, Ph.D., California Department of Toxic Substances Control, Human and Ecological Risk Division (HERD) Dated: 16 January 2002 (received 11 February 2002) Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc. Date: 12 March 2002</p>		
Number	Comment	Response
	<p>page A-21). For sites with sufficient ecological habitat to be used by a range of species or sites within reasonable distance of the NWR, HERD would recommend an evaluation of the form and/or site-specific bioavailability of the soil lead as suggested (Section A2.2, page A-21).</p>	
7.	<p>The wildlife exposure factors (Table A2-3, page A-19) were checked at random and found to agree with the references cited.</p>	<p>Comment noted.</p>
8.	<p>An attempt was made, but we were not able to calculate an Ecological Preliminary Remediation Goal (EPRG) for the American Robin similar to the values presented (Section A3, page A-27) using the Wildlife Exposure Factors presented in Table A2-3 and the adjusted Toxicity Reference Values presented (Section A2.3, page A-23). The Summary table of proposed EPRGs (Table A2-5, page A-25) indicates a Site Use Factor (SUF) of 0.125 and a Toxicity Reference Value (TRV) of 0.19 mg/kg-d was used to obtain the 317 mg/kg soil EPRG for the American Robin. The formula for IR_i for the robin defaults to Ingestion Rate (IR) divided by the Body Weight (BW) with the added intake from soil ingestion, as the entire diet is invertebrates. When using these values the EPRG we were able to develop is 342 mg/kg lead for the American Robin. After discussions with the ecological risk assessor, on January 9, 2001, a more detailed summary of the calculations was forwarded (Attachment A). Following these assumptions and formulae in Attachment A, HERD was able to duplicate the 317 mg/kg EPRG for the</p>	<p>The following paragraph will be added to the end of Section A2.2 of Appendix A: "The gastro-intestinal bioavailability of lead from food items to wildlife receptors is assumed at 100 percent." The equation shown in Section A2.4 of Appendix A will be modified as follows:</p> $PRG = \frac{TRV * BW}{\sum_{i=1}^k [UF_i * IR * FI_i * AE_i * SUF]}$ <p>where</p> <p>PRG = concentration of chemical in soil. Value is expressed as mg/kg_{dw}. TRV = toxicity reference value. A dose expressed as quantity of chemical per body weight per day, mg_{chemical}/kg_{BW}-day. BW = body weight of the animal, expressed as kg_{BW}. UF_i = ingested-media-specific uptake factor (soil or food item). Value is expressed as kg_{soil}/kg_{tissue}. UF for soil is 1.</p>

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: James M. Polisini, Ph.D., California Department of Toxic Substances Control, Human and Ecological Risk Division (HERD)
Dated: 16 January 2002 (received 11 February 2002)
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
	<p><i>American Robin. The text should be modified to include the equation contained in Attachment A, as well as the assumption of 100 percent bioavailability for lead in prey items.</i></p>	<p>IR = receptor specific ingestion rate, expressed as quantity of food (weight) per day, $\text{kg}_{\text{food}} \text{ dw} / \text{day}$.</p> <p>$\text{FI}_i$ = receptor specific fractional intake rate for each medium (including plant and animal food items). Dietary composition. Value has no units.</p> <p>AE_i = chemical specific gastrointestinal absorption efficiency (bioavailability) for each ingested medium (including soil and food items) for each representative species. Value has no units.</p> <p>SUF = site use factor, receptor specific. Value has no units.</p> <p>k = number of ingested media types (i.e., soil, plant, invertebrate, mammal).</p> <p>The equation shown in A2.2 and Tables A2-3 and A2-4 will also be revised for consistency.</p>
9.	<p><i>The copy of the Validation Study (CH2M/Hill, 1999) for Sites 1 and 7 was checked and the average of the invertebrate lead uptake factor for these sites is arithmetically correct. Even using the highest invertebrate lead uptake factor (0.93 mg/kg / 79.9 mg/kg or 0.01164) would only decrease the EPRG by approximately 25 percent. Given the small size of Site 73 and the lack of quality habitat, the lack of RTE species and the fact that the Site 1 and Site 7 habitat where the uptake factors were developed differs greatly from that at Site 73, HERD will accept the proposed wildlife EPRG 317 mg/kg as the cleanup goal for lead.</i></p>	<p>Comment noted. Also, see response to the General Comment.</p>

RESPONSES TO COMMENTS* DRAFT ENGINEERING EVALUATION/COST ANALYSIS NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73 NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA		
Comments by: James M. Polisini, Ph.D., California Department of Toxic Substances Control, Human and Ecological Risk Division (HERD) Dated: 16 January 2002 (received 11 February 2002) Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc. Date: 12 March 2002		
Number	Comment	Response
10.	EPRGs for plants, soil invertebrates, soil microbes and wildlife are <u>not</u> presented in Table A2-5 as outlined in the text (Section A2.4, page A-23). The copy provided for review contains no Table A2-5. Please forward Table A2-5 for HERD review.	Table A2-5 was included in Appendix A of the EE/CA on page A-25. Pages A-25 and A-26 were faxed to HERD on February 12, 2002.
CONCLUSIONS		
	Given the small size of Site 73 and the lack of quality habitat, the lack of RTE species and the fact that the Site 1 and Site 7 habitat, where the uptake factors were developed, differs greatly from that at Site 73, HERD will accept the proposed wildlife EPRG of 317 mg/kg as the cleanup goal for lead.	Comment noted. Also, see response to the General Comment.
REFERENCES		
	CH2MHill, 1999. Phase II Ecological Risk Assessment Sampling Results and Reevaluation of Ecological Chemicals of Concern and Ecological Cleanup Levels for Sites 1 and 7, at WPNSTA Seal Beach.	

Note:

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Attachment A - Electronic message from Brown and Caldwell risk assessor outlining calculation of EPRG for American Robin at NWS Seal Beach for Site 73.

page 6 of 6

Date: 9 January 2002
 To: Jim Polisini, DTSC
 From: Tom McDonnell, Brown and Caldwell
 Subject: NAVWPNSTA Seal Beach, IR Site 73, Soil-Lead PRG for American Robin

$$PRG = \frac{TRV * BW}{\sum (UF_i * IR * FI_i * AE_i * SUF)}$$

The soil-lead PRG for the American robin is based on the following values, which include exposures via soil ingestion and invertebrate ingestion. The subscript "i" indicates dose source-specific factors.

TRV = 0.19 mg_{lead}/kg_{bw}-day (Section A2.3)

BW = 0.081 kg_{bw} (Table A2-3)

IR = 0.011333 kg_{food}/day (ingestion rate from Nagy 1987 allometric equation for "all birds")

SUF = 12.5 percent site use factor (Table A2-3)

UF_{soil} = 1 kg_{soil}/kg_{soil} (included for completeness, primary use is for modeling other media values based on soil values)

FI_{soil} = 10 percent soil ingestion (Table A2-3)

AE_{soil} = 25 percent gastrointestinal absorption factor for soil-lead (Section A2.2)

UF_{invert} = 0.0093 kg_{soil}/kg_{invert} (Section A2.2)

FI_{invert} = 100 percent of diet is invertebrates (Table A2-3)

AE_{invert} = 100 percent gastrointestinal absorption factor for lead in food items

$$PRG = \frac{0.19 \frac{\text{mg}_{\text{lead}}}{\text{kg}_{\text{bw}} - \text{day}} * 0.081 \text{kg}_{\text{bw}}}{\sum \left(\left(1 \frac{\text{kg}_{\text{soil}}}{\text{kg}_{\text{soil}}} * 0.011333 \frac{\text{kg}_{\text{food}}}{\text{day}} * 10\% \frac{\text{kg}_{\text{soil}}}{\text{kg}_{\text{food}}} * 25\% * 12.5\% \right) + \left(0.0093 \frac{\text{kg}_{\text{soil}}}{\text{kg}_{\text{invert}}} * 0.011333 \frac{\text{kg}_{\text{food}}}{\text{day}} * 100\% \frac{\text{kg}_{\text{invert}}}{\text{kg}_{\text{food}}} * 100\% * 12.5\% \right) \right)} = 317 \frac{\text{mg}_{\text{lead}}}{\text{kg}_{\text{soil}}}$$

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Patricia Hannon, California Regional Water Quality Control Board
Dated: 24 January 2002
Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
1.	<p><i>We have completed our review of the above-referenced document, dated November 2001, which we received on November 26, 2001. Lead was detected in soil samples that were collected during the investigation of Site 73 (Water Tower). The Navy and their contractor are proposing to excavate the contaminated soil (with lead concentrations above 400 mg/kg) and dispose of it at an appropriate offsite facility.</i></p> <p><i>Based on the information in the report, we concur with the Navy's proposal. We request that records of the soil excavation, hauler's manifest and disposal information be kept available for our review.</i></p>	<p>Comment acknowledged. The records of the soil excavation, waste transporter's manifests, and disposal information will be available for regulatory review.</p>

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RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response
Dated: 18 January 2002
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
GENERAL		

	<p><i>This memo is in response to a recent request from Ms. Pei-Fen Tanashiro of the U.S. Navy. The California Department of Fish and Game, Office of Spill Prevention and Response (DFG-OSPR) has completed its review of the "Draft Engineering Evaluation/Cost Analysis Non-Time-Critical Removal Action for Installation Restoration 73 Naval Weapons Station, Seal Beach," dated November 21, 2001. The Engineering Evaluation/Cost Analysis (EE/CA) was prepared for the Navy by Bechtel National, Inc (BNI). Per the Navy's Federal Site Remediation Agreement with the State of California, we reviewed the document. The comments that follow are provided as part of our role as a natural resource trustee for the State of California's fish and wildlife and their habitats.</i></p>	No response necessary.
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BACKGROUND		
	<p><i>The Naval Weapons Station (NAVWPNSTA) Seal Beach is an open base located approximately 26 miles south of Los Angeles, consisting of about 5000 acres of land along the Pacific Coast within the city of Seal Beach in Orange County, California. IR Site 73 consists of the area under and surrounding the station's water tower, located east of Seal Beach Boulevard, south of the Main Gate.</i></p> <p><i>The EE/CA stated that the source of contamination at IR Site 73 is associated with several sandblasting and repainting events that occurred at the station's water tower. The Navy evaluated risk at IR Site 73 for hazards to human</i></p>	No response necessary.

RESPONSES TO COMMENTS*

DRAFT ENGINEERING EVALUATION/COST ANALYSIS

NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73

NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response
Dated: 18 January 2002
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
	<p>health and ecological receptors associated with lead. Risk assessment results demonstrated that current conditions at IR Site 73 present a threat to ecological receptors. This EE/CA identified and analyzed removal actions to address lead within soil at IR Site 73, NAVWPNSTA Seal Beach. Two alternatives were identified, evaluated, and ranked:</p> <ul style="list-style-type: none"> • Alternative 1 - no action • Alternative 2 - excavation with off-site disposal - Option A, mechanical excavation with monitoring by an archaeological monitor and a Naive American monitor - Option B, data recovery followed by mechanical excavation with monitoring by an archaeological monitor and a Naive American monitor <p>The recommended removal action is Alternative 2, Option A. This alternative was selected because it would greatly reduce risk to ecological receptors by completely removing soil with lead contamination. Following implementation of this alternative, the land use will be unrestricted.</p>	

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response
Dated: 18 January 2002
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
COMMENTS		
1.	DFG-OSPR appreciates this opportunity to provide guidance on the planned cleanup at NAVWPNSTA Seal Beach. This letter will serve to inform the Navy of our continuing interest in coordinating any natural resource issues, as one of the designated State natural resource trustees. This may be necessary should release(s) of any hazardous materials at the subject site affect State natural resources.	Comment acknowledged.
2.	Page A-21, Section A2.3: The text incorrectly states that the high-TRVs are based on lowest-observable-adverse-effect level. High TRVs were derived based on the mid-range of ecologically relevant effects observed for each receptor exposed to a series of doses. We suggest that the statement be changed to: The low TRV represents the no adverse effect level, below which adverse ecological impacts are not expected to occur. In contrast, the high TRV represents the approximate mid-point of observed adverse effects, and as such, represents a level at which ecologically significant adverse effects are likely to occur.	The 3 rd sentences of the 2 nd paragraph in Section A2.3, Appendix A will be revised to read: "The High-TRV, based on an approximate midpoint of the range of effects levels, represents a threshold above which adverse effects are likely to occur."
3.	Page A-27, Section A3: While we understand that IR Site 73 consist primarily of a regularly maintained grass lawn, we strongly recommend that the lead value of 317 mg/kg as a suitable cleanup goal to protect wildlife from the National Wildlife Refuge. The site is approximately 3,500 feet from the National Wildlife Refuge, which is within the western snowy plover's home range because its home range may be up to 1.5 km (about 4,931 feet) from the nest site.	The Navy proposes to modify the cleanup goal from 400 mg/kg to 317 mg/kg. The value of 317 mg/kg, based on the American robin model, retains all of the conservative factors included in the risk assessment. It is protective of all the wildlife receptors evaluated at the site, including the snowy plover. The distance from IR Site 73 to the NWR is approximately 1,700 feet. A distance of 3,500 feet was incorrectly listed in Appendix B of the EE/CA and will be revised.

RESPONSES TO COMMENTS* DRAFT ENGINEERING EVALUATION/COST ANALYSIS NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73 NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA		
Comments by: Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response Dated: 18 January 2002 Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc. Date: 12 March 2002		
Number	Comment	Response
	<i>Therefore, in order to reduce the risk of lead exposure to western snowy plovers from the National Wildlife Refuge, the value of 317 mg/kg should be considered the highest value that is considered to be protective of wildlife.</i>	<p>The following calculation presents a lead PRG for IR Site 73 that is protective of snowy plover:</p> $PRG = \frac{TRV * BW}{\sum (UF_i * IR * FI_i * AE_i * SUF)} = 432 \text{ mg/kg}$ <p>where,</p> <p>TRV = toxicity reference value, 0.014 mg/kg-day, Low-TRV (EFA-West 1998)</p> <p>BW = body weight, 0.0418 kg (Page et al. 1995)</p> <p>IR = ingestion rate of food, 0.007367 kg/day, (Nagy 1987)</p> <p>0.0582 * BW^{0.651}, for body weight (BW) in kg</p> <p>UF = uptake factor, 0.0093 for food (invertebrates) (CH2M Hill 1999), 1.0 for soil</p> <p>FI = fractional intake of diet, 100% for food (invertebrates), 20% for soil (Beyer et al. 1994)</p> <p>AE = assimilation efficiency (gastrointestinal), 100% for food (invertebrates), 25% for soil (Maddaloni et al. 1998)</p> <p>SUF = site use factor, 0.0031 based on site area 2.19 ha and home range 706.9 ha (Zeiner et al. 1990)</p> <p>These calculations indicate that the modified lead cleanup goal of 317 mg/kg is also protective of the snowy plover.</p> <p>References: Beyer, W.N., E.E. Connor, S. Gerould. 1994. Estimates of Soil Ingestion by Wildlife. J. Wildl. Manage. 58(2):375-382.</p>

RESPONSES TO COMMENTS*

DRAFT ENGINEERING EVALUATION/COST ANALYSIS NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73 NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response
Dated: 18 January 2002
Response by: Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
		<p>CH2M Hill. 1999. Phase II Ecological Risk Assessment Sampling Results and Reevaluation of Ecological Chemicals of Concern and Ecological Cleanup Levels for Sites 1 and 7, at WPNSTA Seal Beach. Draft Final Technical Memorandum. Prepared by CH2M Hill. 28 January.</p> <p>EFA-West. See Engineering Field Activity, West.</p> <p>Engineering Field Activity, West. 1998. Development of Toxicity Reference Values for Conducting Ecological Risk Assessments at Naval Facilities in California, Interim Final. EFA West, Naval Facilities Engineering Command, United States Navy. San Bruno, California.</p> <p>Maddaloni, M., N. Lolacono, W. Manton, C. Blum, J. Drexler, and J. Graziano. 1998. Bioavailability of soilborne lead in adults by stable isotope dilution. Environmental Health Perspectives. 106:1589-1594.</p> <p>Nagy, K.A. 1987. Field metabolic rate and food requirement scaling in mammals and birds. Ecol. Monogr. 57:111-128.</p> <p>Page, G.W., J.S. Warriner, J.C. Warriner, and P.W.C. Patton. 1995. Snowy Plover (<i>Charadrius alexandrinus</i>). In <i>The Birds of North America</i>, No. 154 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.</p>

RESPONSES TO COMMENTS* DRAFT ENGINEERING EVALUATION/COST ANALYSIS NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73 NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA		
Comments by:	Charlie Huang, Ph.D., California Department of Fish and Game Office of Spill Prevention and Response	
Dated:	18 January 2002	
Response by:	Bob Schilling, Tom McDonnell, and June Wheaton, Bechtel National, Inc.	
Date:	12 March 2002	
Number	Comment	Response
CONCLUSIONS		
	<i>We concur with the Navy-recommended removal action. However, we recommended that the lead cleanup goal be 317 mg/kg instead of 400 mg/kg. We look forward to continued interactions with Navy staff on issues related to the IR Program.</i>	See response to Comment No. 3.

Note:

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RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: Joseph E. Porter III, City of Seal Beach
Dated: 19 December 2001
Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
1.	<p><i>The City of Seal Beach has reviewed Draft Engineering Evaluation/Cost Analysis, Non-time Critical Removal Action for Installation Restoration Site 73, Naval Weapons Station, Seal Beach, November, 2001. The City disagrees with the recommended Alternative 2, Option A. The City feels that Alternative 2, Option B is the most appropriate.</i></p> <p><i>The City agrees with the necessity to have an archeological monitor and a Native American Monitor on site during the excavation. However, the City feels that performing the data recovery excavation is an important step in determining whether or not there are any artifacts of archeological significance on the site. In the "Focused Site Inspection Phase II Report," dated December 18, 2000, a letter from Ronald M. Bissell, Registered Professional Archeologist, appears under Appendix A (Archeological Documentation). In the letter, Mr. Bissell states as his third recommendation "The shell midden within IR Site 73 must be subjected to a data recovery excavation of sufficient scope to collect a statistically valid sample of site material if the evaluative excavation recommended above establishes the deposit as a contributing element to the significance of CA-ORA-322/118. Preservation is not an option, since the soils within the midden are contaminated." The archeologist further goes on to say, "The above recommendations are to be accomplished prior to the initiation of any remedial action to remove the contamination from the IR Site 73 sampling area."</i></p> <p><i>The City feels strongly that the recommendations of a registered professional archeologist should be followed.</i></p>	<p>Based on preliminary discussions with the State Historic Preservation Officer, the recommended alternative will be revised to Alternative 2, Option B in the final EE/CA.</p> <p>In addition, the soil volume to be removed during data recovery will not be quantified as 15% of the total removal action volume in the final EE/CA. The actual volume will be determined during development of the data recovery plan.</p>

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
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Comments by: Joseph E. Porter III, City of Seal Beach
Dated: 19 December 2001
Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
2.	<p><i>While this represents an increase in overall project cost, the City feels that the Department of the Navy should follow the recommendations of the professional technicians it employs and stay consistent with the findings of previous reports.</i></p> <p><i>The City has two additional concerns in this matter. The first is that the report has identified lead as a contaminant on the site substantially close to Seal beach Blvd. The report shows concentric rings of contamination. The City is concerned that this lead may be present on the City's property along the Seal Beach Blvd. right of way. The City is requesting that further study be conducted to identify if lead contaminants are present on the City's property, and if they are present, that the appropriate clean up remediation be undertaken as part of this cleanup effort being undertaken by the Department of the Navy. Additionally, the City would like to receive copies of any final reports detailing archeological findings on the subject property.</i></p>	<p>The isoconcentration lines shown on Figures 2-5 and 2-6 reflect a graphical interpretation of available data. During implementation of the selected removal action alternative, confirmation soil samples will be collected to demonstrate that soil with lead concentrations above the cleanup goal has been removed, otherwise additional soil will be removed. The excavation will continue beyond the NAVWPNSTA Seal Beach fence line if necessary.</p> <p>As requested by the reviewer, a copy of any final reports detailing archaeological findings on the subject property will be provided to the City of Seal Beach.</p> <p>In addition, copies of these reports will be available to the public in the information repositories located at NAVWPNSTA Seal Beach, Building 110, and at the Seal Beach Public Library, Mary Wilson Branch, 707 Electric Avenue, Seal Beach, California 90740, telephone (562) 431-3584.</p> <p>Project documents are also available to the public through the Administrative Record. The complete Administrative Record is located at 1220 Pacific Highway, San Diego, California, and is maintained by Ms. Diane Silva, SWDIV Administrative Record Coordinator, telephone (619) 532-3676.</p>

Note:

* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

RESPONSES TO COMMENTS*
DRAFT ENGINEERING EVALUATION/COST ANALYSIS
NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73
NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA

Comments by: William G. Hurley
Dated: 21 December 2001
Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.
Date: 12 March 2002

Number	Comment	Response
	<p><i>I only became aware of this document on Dec. 17, 2001.</i></p> <p><i>I am very concerned that DON's preference for removal action Alternative 2-A may be based on a confusion of data, on the one hand, and the ignoring of other data, on the other.</i></p> <p><i>On the basis of a limited review of the record, Option 2-A, in my opinion, does not treat cultural resources appropriately, and, if implemented, might violate a federal statute (Archaeological and Historical Preservation Act). From the evidence I've seen, Option 2-B is not only preferable, but may be required.</i></p> <p><i>In your Summary, 3rd paragraph, last line: "...known archaeological site (CH2M Hill 2000)." This refers to "Focused Site Inspection, Phase II, Vol. 1," (I didn't note specific page[s]) wherein the site is described as having various types of shells and possibly a midden.</i></p> <p><i>But in your Part 6, subsection 6.1: "...little evidence in the archaeological monitoring report (RMW2000)." This refers to "Archaeological Monitoring at IR Site 73..."</i></p> <p><i>This latter document is contained within the FSI Phase II, Vol. 1 in an Appendix A (Archaeological Documentation) in a mislabeled subsection ("Appendix A-5 "OSR Report"). The first 6 pages of App. A-5 deal with 13 other sites in the study, where little of archaeological value was found. The next page reads only "Appendix, Class Letter Report."</i></p> <p><i>Following this is the "Archaeological Monitoring at IR Site</i></p>	<p>Based on preliminary discussions with the State Historic Preservation Officer, the recommended alternative will be revised to Alternative 2, Option B in the final EE/CA.</p> <p>In addition:</p> <p>The soil volume to be removed during data recovery will not be quantified as 15% of the total removal action volume in the final EE/CA. The actual volume will be determined during development of the data recovery plan.</p> <p>The second to the last sentence in Section 6.1 "In addition, there is little evidence in the archaeological monitoring report to suggest that the area of the proposed excavation would contain cultural resources (RMW 2000)." will be deleted in the final EE/CA.</p>

RESPONSES TO COMMENTS* DRAFT ENGINEERING EVALUATION/COST ANALYSIS NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION SITE 73 NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA		
Comments by: William G. Hurley Dated: 21 December 2001 Response by: Bob Schilling and June Wheaton, Bechtel National, Inc. Date: 12 March 2002		
Number	Comment	Response
	<p>73... " It consists of 7 pages and 2 maps. It's recommendations include:</p> <p>"...shell midden within Site 73 must be subjected to evaluative controlled archaeological excavation and analysis..."</p> <p>"...shell midden within Site 73 must be subjected to a data recovery excavation of sufficient scope..."</p> <p>"The above recommendations are to be accomplished prior to the initiation of any remedial action to remove the contamination from the IR site 73 sampling area."</p> <p>I have not found any basis for your statement at Pt. 6, Sec. 6.1. It may erroneously be based on the findings for the other 13 sites in App. A-5.</p> <p>I'm sure you don't need to be reminded that federal law (Arch./Hist./Pres. Act) <u>REQUIRES</u> data recovery if significant data are found.</p> <p>I hope the above will prove helpful to you and I look forward to your response.</p>	

Note:

* These responses may identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

ATTACHMENT C

FIGURES AND TABLES

TABLE OF CONTENTS

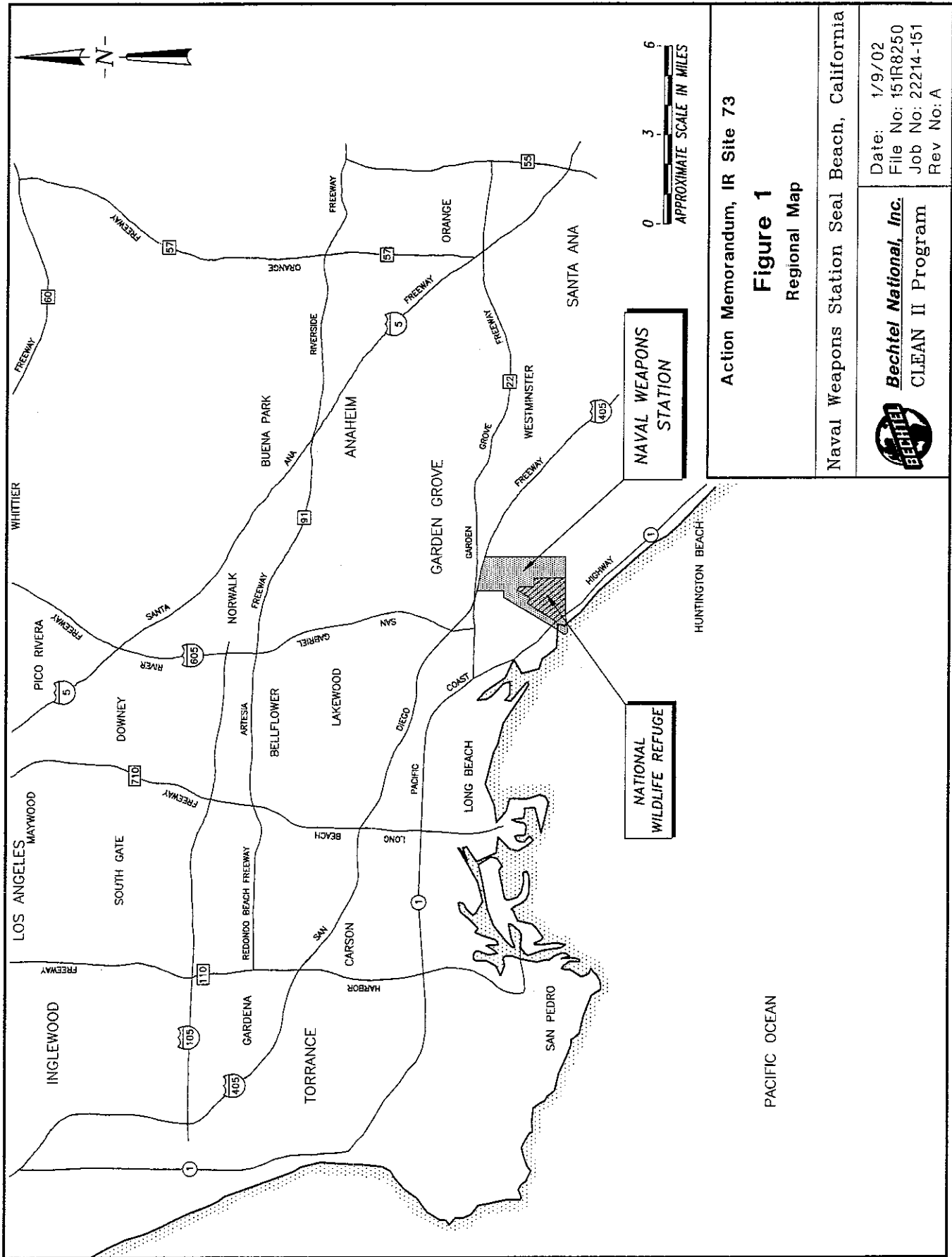
FIGURES

Figure		Page
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2	Site Location Map	C2
3	Site Map	C3
4	Surface Features	C4
5	Lead Concentrations in Soil at 0.5 – 1.0 ft bgs	C5
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TABLES

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2	Cost Estimate for Alternative 2, Excavation With Off-Site Disposal	C10
3	Total Costs of Removal Action Alternatives for IR Site 73	C11
4	Ranking of Alternatives	C11
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9	Potential Federal Action-Specific ARARs	C21
10	Potential State Action-Specific ARARs	C24

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Action Memorandum, IR Site 73

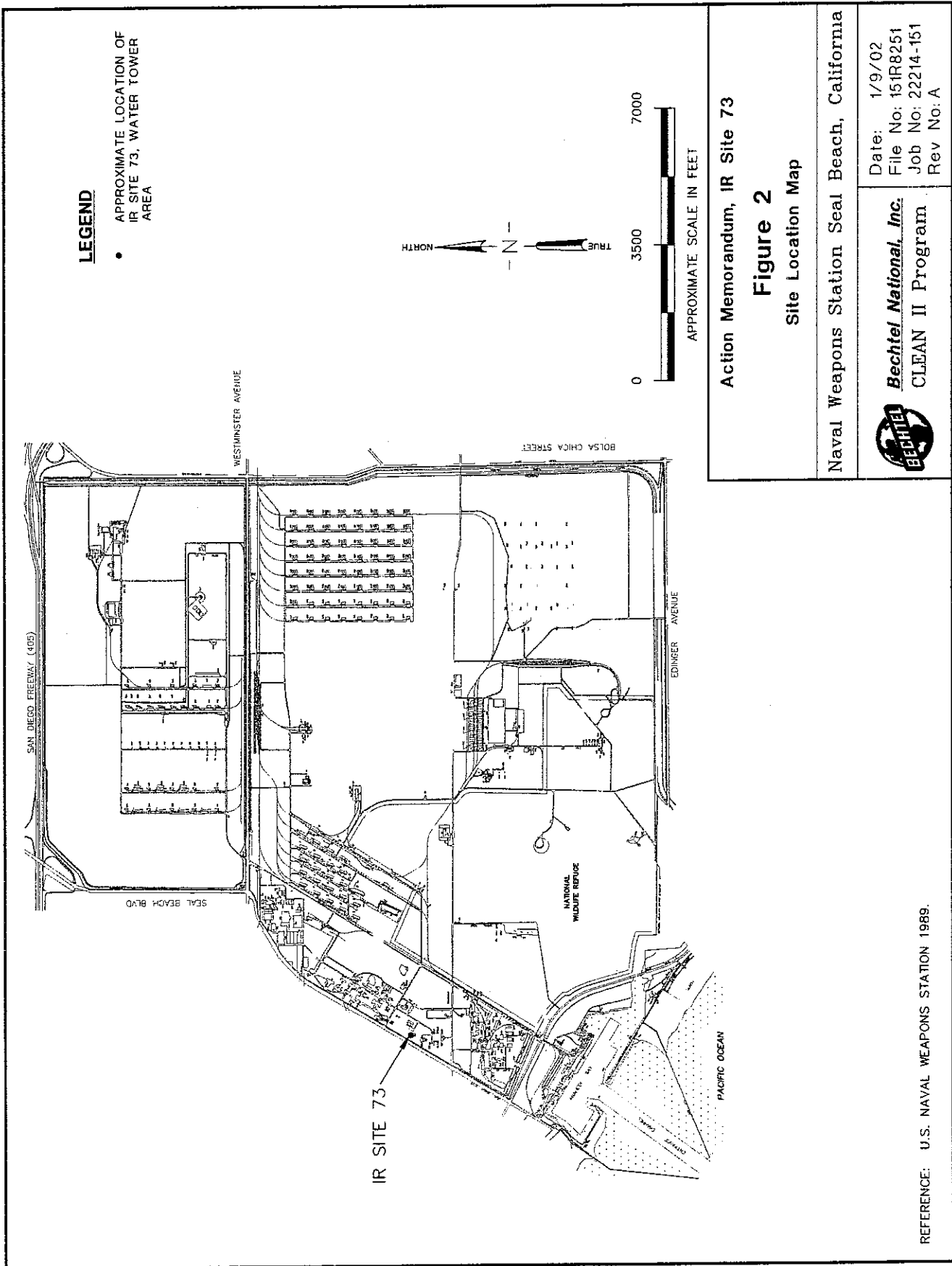
Figure 1 Regional Map

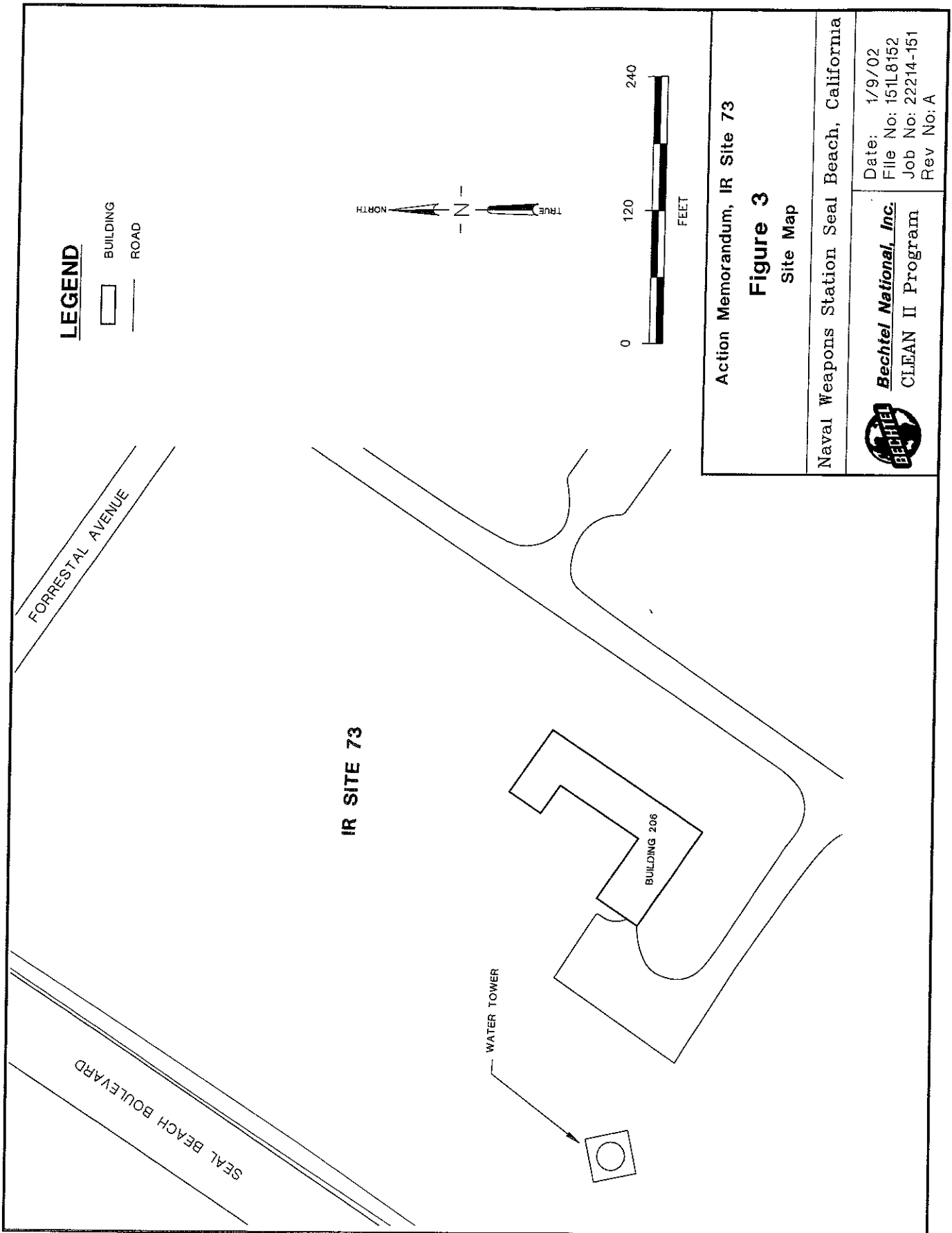
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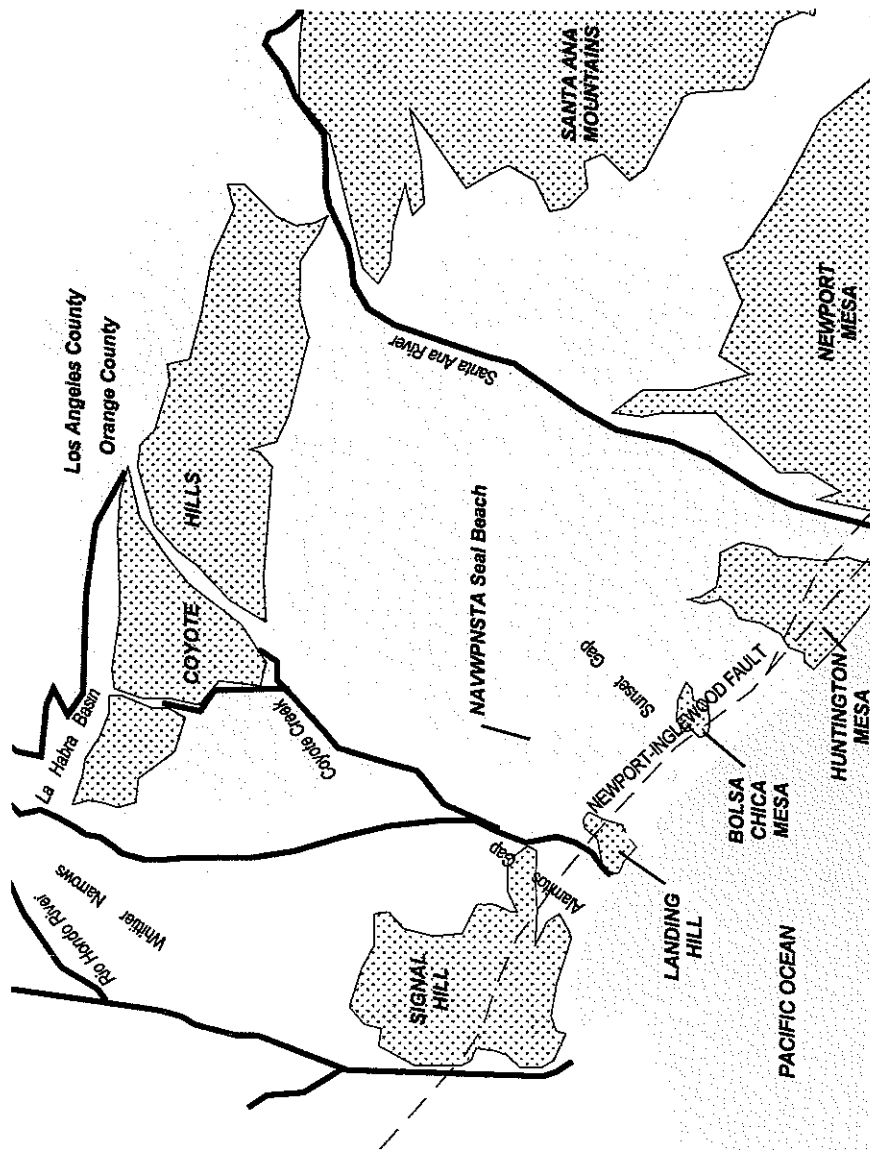
Date: 1/9/02
File No: 151R8250
Job No: 22214-151
Rev No: A

Bechtel National, Inc.
CLEAN II Program









5 0 5 Miles



REFERENCE: ADAPTED FROM JEG 1995.

Action Memorandum, IR Site 73

Figure 4

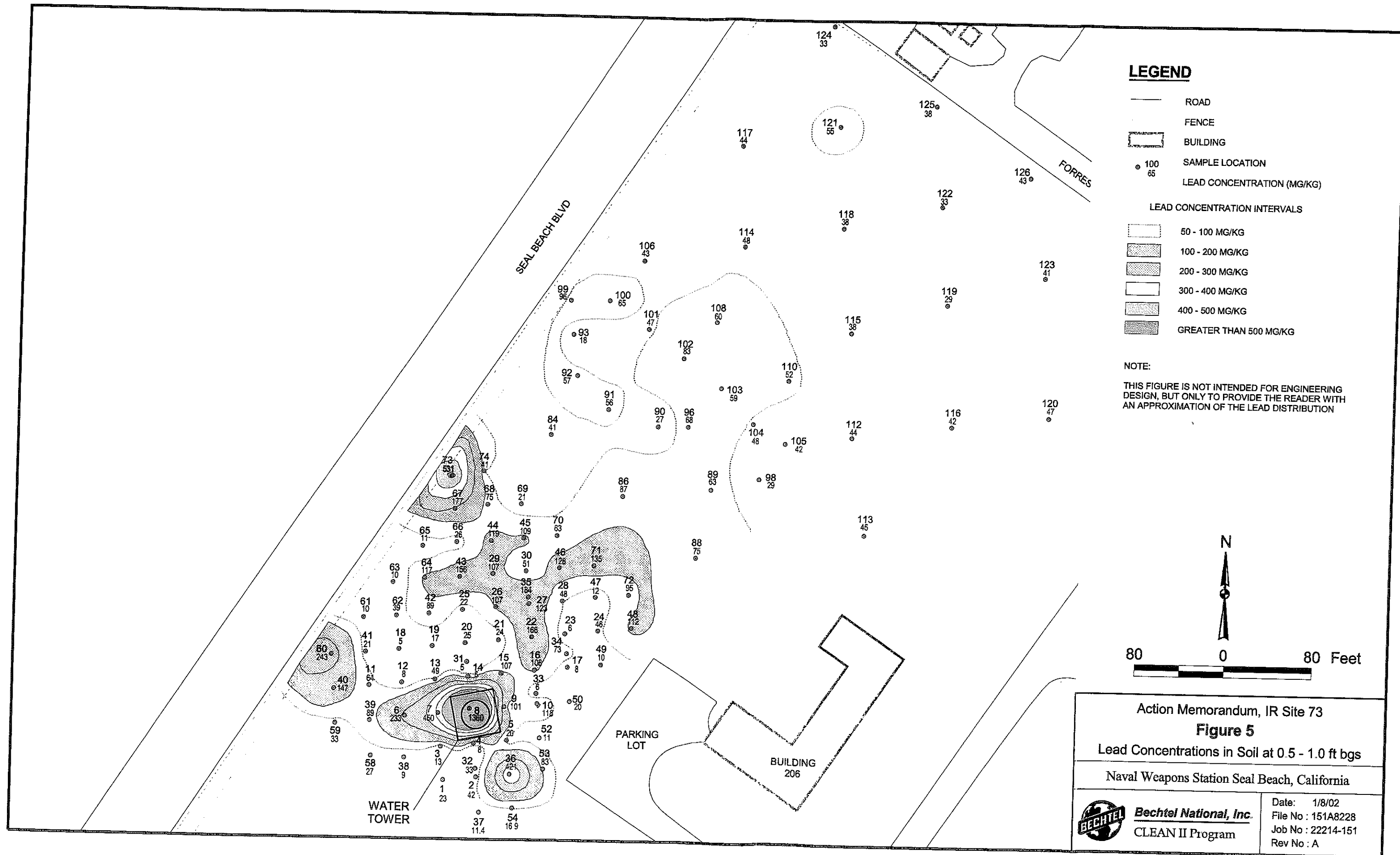
Surface Features

Naval Weapons Station Seal Beach, California



Bechtel National, Inc.
Clean II Program

Date: 7/2/02
File No: 151R8230
Job No: 22214-151
Rev No: B



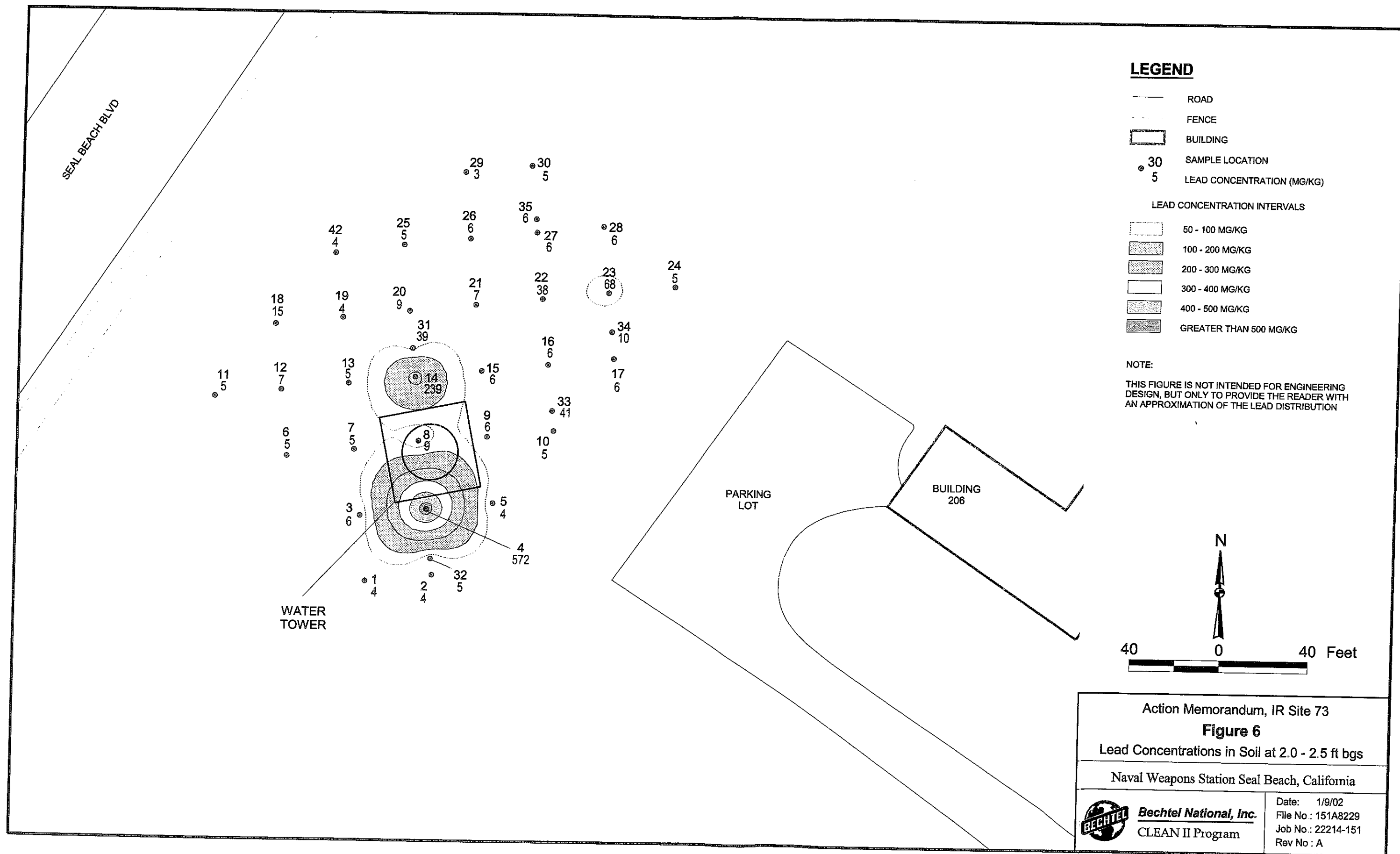


Table 1
Evaluation of Technologies and Process Options

General Response Action	Technology	Process Option
No action	No action	None
Engineering controls	Access restrictions	Fencing * Alarms
	Caps/covers	Soil/vegetative cover
Treatment	Physical/chemical treatment	Electrokinetic remediation Soil washing Solidification/stabilization
	Biological treatment	Phytoremediation
Excavation/backfilling	Excavation	Data recovery (manual excavation) Mechanical excavation
	Backfilling	Backfilling Revegetation
Disposal	On-site disposal	On-site beneficial reuse
	Off-site disposal	Off-site disposal/recycling

Note:

* shaded process options were eliminated during screening

Table 2
Cost Estimate for Alternative 2, Excavation With Off-Site Disposal

Description	Cost	
	OPTION A	OPTION B
Direct capital costs		
Mobilization/demobilization	\$2,300	\$2,300
Clear and grub (0.15 acre)	\$500	\$500
Mechanical excavation (400 [Option A] and 340 [Option B] bcy) and backfill (500 lcy)	\$8,800	\$8,200
Data recovery (60 bank cubic yards) (Option B only)	— ^a	\$125,000
Load and transport excavated material for disposal (500 lcy)	\$31,300	\$31,300
Confirmation soil sampling (one sample per 10- by 10-foot area + 20 percent for QC = 76 samples analyzed for total lead (U.S. EPA Method 7000 series))	\$4,900	\$4,900
Profile soil sampling for disposal (one composite sample per 125 lcy = 4 samples analyzed for total metals [U.S. EPA Method 6010B/7000 series], TCLP metals [U.S. EPA Method 1311 and U.S. EPA Method 6010B/7000 series], and STLC [California WET])	\$2,100	\$2,100
Revegetate with sod and repair sprinkler system (0.2 acre)	\$12,200	\$12,200
Professional labor (project oversight)	\$8,100	\$8,100
Total direct capital costs (based on January 2001 cost database)	\$70,200	\$194,600
Indirect costs (e.g., overhead, profit) (based on January 2001 cost database)	\$39,600	\$109,800
Contingency^b	\$22,000	\$61,000
Escalation^c	\$6,000	\$16,600
TOTAL COST (assumed start date of July 2002)	\$137,800	\$382,000
NET PRESENT VALUE (January 2001 dollars)	\$128,800	\$357,000

Notes:

^a not applicable

^b a 20 percent contingency has been added to cover cost increases that may occur as a result of unforeseen conditions and changes that typically occur remediation projects

^c escalation modifies the costs in the Remedial Action Cost Engineering and Requirements database from January 2001 to the assumed project start date of July 2002

Acronyms/Abbreviations:

bcy – bank cubic yard

Cal-EPA – California Environmental Protection Agency

lcy – loose cubic yard

QC – quality control

STLC – soluble threshold limit concentration

TCLP – toxicity characteristic leaching procedure

U.S. EPA – United States Environmental Protection Agency

WET – (California) Waste Extraction Test

Table 3
Total Costs of Removal Action Alternatives for IR Site 73

Alternatives	Total Cost	NPV
Alternative 1, no action	\$0	\$0
Alternative 2, excavation with off-site disposal		
OPTION A, mechanical excavation with monitoring by an archaeological monitor and a Native American monitor	\$137,800	\$128,800
OPTION B, data recovery by a trained archaeologist followed by mechanical excavation with monitoring by an archaeological monitor and a Native American monitor	\$382,000	\$357,000

Acronyms/Abbreviations:

IR – Installation Restoration (Program)

NPV – net present value

Table 4
Ranking of Alternatives

Alternative	Effectiveness	Implementability	Cost	TOTAL
Alternative 1	1	2	4	7
Alternative 2				
Option A	3	3	3	9
Option B	4	4	2	10

Table 5
Potential Hazardous Waste Determination for
Analytes Reported in Soil Samples Collected From IR Site 73

Analyte ^a	Reported Results ^a	Maximum ^a	Mean ^{a,b,c}	TTLC Max ^c (wet-weight) (mg/kg)	STLC Max ^c (mg/L)	TCLP Max ^c (mg/L)	Exceeds TTLC Max (potentially California hazardous)		Exceeds 10 × STLC Max (potentially California hazardous)		Exceeds 20 × TCLP Max (potentially RCRA hazardous)	
							Max	Mean	Max	Mean	Max	Mean
SVOCs (µg/kg)												
1,2,4-trichlorobenzene	0 of 102	— ^d	—	—	—	—	—	—	—	—	—	—
1,2-dichlorobenzene	0 of 102	—	—	—	—	—	—	—	—	—	—	—
1,3-dichlorobenzene	0 of 102	—	—	—	—	—	—	—	—	—	—	—
1,4-dichlorobenzene	0 of 102	—	—	—	—	7.5	—	—	—	—	—	—
2,4,5-trichlorophenol	0 of 102	—	—	—	—	400.0	—	—	—	—	—	—
2,4,6-trichlorophenol	0 of 102	—	—	—	—	2.0	—	—	—	—	—	—
2,4-dichlorophenol	0 of 102	—	—	—	—	—	—	—	—	—	—	—
2,4-dimethylphenol	0 of 102	—	—	—	—	—	—	—	—	—	—	—
2,4-dinitrophenol	0 of 102	—	—	—	—	—	—	—	—	—	—	—
2,4-dinitrotoluene	0 of 102	—	—	—	—	0.13	—	—	—	—	—	—
2,6-dinitrotoluene	0 of 102	—	—	—	—	—	—	—	—	—	—	—
2-chloronaphthalene	0 of 102	—	—	—	—	—	—	—	—	—	—	—
2-chlorophenol	0 of 102	—	—	—	—	—	—	—	—	—	—	—
2-methylnaphthalene	0 of 102	—	—	—	—	—	—	—	—	—	—	—
2-methylphenol	0 of 102	—	—	—	—	—	—	—	—	—	—	—
2-nitroaniline	0 of 102	—	—	—	—	—	—	—	—	—	—	—
2-nitrophenol	0 of 102	—	—	—	—	—	—	—	—	—	—	—
3,3'-dichlorobenzidine	0 of 102	—	—	—	—	—	—	—	—	—	—	—
3-nitroaniline	0 of 102	—	—	—	—	—	—	—	—	—	—	—
4,6-dinitro-2-methylphenol	0 of 102	—	—	—	—	—	—	—	—	—	—	—
4-bromophenyl phenyl ether	0 of 102	—	—	—	—	—	—	—	—	—	—	—
4-chloro-3-methylphenol	0 of 102	—	—	—	—	—	—	—	—	—	—	—
4-chloroaniline	0 of 102	—	—	—	—	—	—	—	—	—	—	—

(table continues)

'cont'

Analyte ^a	Reported Results ^a	Maximum ^a	Mean ^{a,b,c}	TTLC Max ^c (wet-weight) (mg/kg)		STLC Max ^c (mg/L)		TCLP Max ^c (mg/L)		Exceeds TTLC Max (potentially California hazardous)		Exceeds 10 × STLC Max (potentially California hazardous)		Exceeds 20 × TCLP Max (potentially RCRA hazardous)	
				Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean
SVOCs (µg/kg) (continued)															
4-chlorophenyl phenyl ether	0 of 102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4-methylphenol (p-cresol)	1 of 102	640	206	—	—	—	200 ^e	—	—	—	—	—	—	No	No
4-nitroaniline	0 of 102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4-nitrophenol	0 of 102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Acenaphthene	2 of 102	1,200	208	—	—	—	—	—	—	—	—	—	—	—	—
Acenaphthylene	0 of 102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Anthracene	12 of 102	4,200	226	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)anthracene	43 of 102	10,000	387	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(a)pyrene	42 of 102	7,300	321	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(b)fluoranthene	44 of 102	9,000	390	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(g,h,i)perylene	13 of 102	850	201	—	—	—	—	—	—	—	—	—	—	—	—
Benzo(k)fluoranthene	20 of 102	3,200	225	—	—	—	—	—	—	—	—	—	—	—	—
Benzyl butyl phthalate	0 of 102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
bis(2-chloroethoxy)methane	0 of 102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
bis(2-chloroethyl)ether	0 of 102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
bis(2-chloroisopropyl)ether	0 of 102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
bis(2-ethylhexyl)phthalate	27 of 102	10,000 J	265	—	—	—	—	—	—	—	—	—	—	—	—
Carbazole	6 of 102	710 J	196	—	—	—	—	—	—	—	—	—	—	—	—
Chrysene	44 of 102	11,000	410	—	—	—	—	—	—	—	—	—	—	—	—
Dibenz(a,h)anthracene	10 of 102	900	191	—	—	—	—	—	—	—	—	—	—	—	—
Dibenzofuran	1 of 102	250 J	200	—	—	—	—	—	—	—	—	—	—	—	—
Diethyl phthalate	23 of 102	3,500	254	—	—	—	—	—	—	—	—	—	—	—	—
Dimethyl phthalate	0 of 102	—	—	—	—	—	—	—	—	—	—	—	—	—	—
di-n-butyl phthalate	46 of 102	110 J	142	—	—	—	—	—	—	—	—	—	—	—	—
di-n-octyl phthalate	0 of 102	—	—	—	—	—	—	—	—	—	—	—	—	—	—

(table continues)

Table 5 (continued)

Analyte ^a	Reported Results ^a	Maximum ^a	Mean ^{a,b,c}	TTLC Max ^c (wet-weight) (mg/kg)	STLC Max ^c (mg/L)	TCLP Max ^c (mg/L)	Exceeds TTLC Max ^c (potentially California hazardous)	Exceeds 10 × STLC Max ^c (potentially California hazardous)	Exceeds 20 × TCLP Max ^c (potentially RCRA hazardous)
SVOCs (µg/kg) (continued)									
Fluoranthene	45 of 102	23,000 D	564	—	—	—	—	—	—
Fluorene	1 of 102	830	206	—	—	—	—	—	—
Hexachlorobenzene	0 of 102	—	—	—	—	0.13	—	—	—
Hexachlorobutadiene	0 of 102	—	—	—	—	0.5	—	—	—
Hexachlorocyclopentadiene	0 of 102	—	—	—	—	—	—	—	—
Hexachloroethane	0 of 102	—	—	—	—	3.0	—	—	—
Indeno(1,2,3-cd)pyrene	22 of 102	2,500	226	—	—	—	—	—	—
Isophorone	0 of 102	—	—	—	—	—	—	—	—
Naphthalene	0 of 102	—	—	—	—	—	—	—	—
Nitrobenzene	0 of 102	—	—	—	—	2.0	—	—	—
N-nitrosodiphenylamine	0 of 102	—	—	—	—	—	—	—	—
N-nitrosodipropylamine	0 of 102	—	—	—	—	—	—	—	—
Pentachlorophenol	0 of 102	—	—	—	—	100.0	—	—	—
Phenanthrene	26 of 102	13,000 D	319	—	—	—	—	—	—
Phenol	0 of 102	—	—	—	—	—	—	—	—
Pyrene	49 of 102	24,000 D	611	—	—	—	—	—	—
Metals (mg/kg)									
Aluminum	113 of 113	25,800	15,715	—	—	—	—	—	—
Antimony ^f	0 of 113	—	—	500	15	—	—	—	—
Arsenic ^{g,h}	70 of 113	76	6.1	500	5.0	5.0	No	Yes	No
Barium ⁱ	113 of 113	974	138	10,000 ⁱ	100	100	No	No	No
Beryllium ^k	67 of 113	0.87 B	0.49	75	0.75	—	No	No	—
Cadmium ^l	57 of 113	9.1	1.9	100	1.0	1.0	No	No	No
Calcium	113 of 113	143,000	10,457	—	—	—	—	—	—

(table continues)

Table 5 (continued)

Analyte ^a	Reported Results ^a	Maximum ^a	Mean ^{a,b,c}	TTLC Max ^c (wet-weight) (mg/kg)	STLC Max ^c (mg/L)	TCLP Max ^c (mg/L)	Exceeds TTLC Max (potentially California hazardous)		Exceeds 10 × STLC Max (potentially California hazardous)		Exceeds 20 × TCLP Max (potentially RCRA hazardous)	
							Max	Mean	Max	Mean	Max	Mean
Metals (mg/kg) (continued)							No	No	Yes	No	No	No
Chromium ^m	113 of 113	85	35	2,500	5 ⁿ	5.0	No	No	Yes	No	No	No
Cobalt ^o	92 of 113	13	9.0	8,000	80	—	No	No	No	No	—	—
Copper ^p	113 of 113	94	31	2,500	25	—	No	No	No	No	—	—
Iron	113 of 113	29,200	22,388	—	—	—	—	—	—	—	—	—
Lead ^q	142 of 142	1,360	70	1,000	5.0	5.0	Yes	No	Yes	Yes	Yes	No
Magnesium	113 of 113	8,490	6,013	—	—	—	—	—	—	—	—	—
Manganese	113 of 113	8,020	672	—	—	—	—	—	—	—	—	—
Mercury ^r	80 of 113	0.33	0.076	20	0.2	0.2	No	No	No	No	No	No
Molybdenum	0 of 113	—	—	—	—	—	—	—	—	—	—	—
Nickel ^s	105 of 113	44	20	2,000	20	—	No	No	No	No	—	—
Potassium	113 of 113	6,450 J	4,751	—	—	—	—	—	—	—	—	—
Selenium	2 of 113	10	0.47	100	1.0	1.0	No	No	No	No	No	No
Silver	18 of 113	5.4	1.4	500	5	5.0	No	No	No	No	No	No
Sodium	89 of 113	1,960 J	466	—	—	—	—	—	—	—	—	—
Thallium ^t	6 of 113	28	1.0	700	7.0	—	No	No	No	No	—	—
Vanadium ^u	113 of 113	58*	42	2,400	24	—	No	No	No	No	—	—
Zinc ^v	113 of 113	341*	112	5,000	250	—	No	No	No	No	—	—

Notes:

^a CH2M Hill 2000^b California Code of Regulations – Title 22, Division 4.5, Chapter 11, Article 3, § 66261.24, updated on 09 January 2002; current as of Register 2001, No. 52, dated 28 December 2001^c when the analytes were not detected, the arithmetic means were calculated by assuming that the analyte was detected at half the MDL^d dash indicates not applicable^e if o-, m-, and p-cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used; the regulatory level of total cresol is 200 mg/L^f antimony and/or antimony compounds^g arsenic and/or arsenic compounds^h shading indicates potentially hazardous

(table continues)

Table 5 (continued)

Notes (continued):

- j barium and/or barium compounds (excluding barite)
- k excluding barium sulfate
- l beryllium and/or beryllium compounds
- m cadmium and/or cadmium compounds
- n chromium and/or chromium (III) compounds
- o if the soluble chromium, as determined by the TCLP set forth in Appendix I of Chapter 18 of § 66261.24 of the Cal. Code Regs., is less than 5 mg/L, and the soluble chromium, as determined by the procedures set forth in Appendix II of Chapter 11 (WET), equals or exceeds 560 mg/L and the waste is not otherwise identified as a RCRA hazardous waste pursuant to § 66261.100, then the waste is a non-RCRA hazardous waste
- p cobalt and/or cobalt compounds
- q copper and/or copper compounds
- r lead and/or lead compounds
- s mercury and/or mercury compounds
- t nickel and/or nickel compounds
- u thallium and/or thallium compounds
- v vanadium and/or vanadium compounds
- w zinc and/or zinc compounds

Acronyms/Abbreviations:

- CRDL – contract required detection limit
- CRQL – contract required quantitation limit
- IDL – instrument detection limit
- IR – Installation Restoration (Program)
- µg/kg – micrograms per kilogram
- MDL – method detection limit
- mg/kg – milligrams per kilogram
- mg/L – milligrams per liter
- RCRA – Resource Conservation and Recovery Act
- STLC – solubility threshold limit concentration
- SVOC – semivolatile organic compound
- TCLP – toxicity characteristic leaching procedure
- TTL – total threshold limit concentration

Data Qualifiers:

- * – duplicate analysis not within control limits
- B – estimated – below CRDL and above IDL
- D – quantitative value from diluted analysis – utilize undiluted analysis to evaluate data usability
- J – estimated – below CRQL and above MDL

Table 6
Potential Federal Chemical-Specific^a ARARs by Medium

Requirement	Prerequisite	Citation ^b	ARAR Determination	Comments
SOIL				
Resource Conservation and Recovery Act (42 U.S.C., ch. 82, §§ 6901–6991[il])^c				
Definition of RCRA hazardous waste.	Waste.	Cal. Code Regs. tit. 22, § 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.100	Applicable	Applicable for determining whether waste is hazardous.
A solid waste is characterized as toxic, based on the TCLP, if the waste exceeds the TCLP maximum concentrations.	Waste.	40 C.F.R. pt. 261.24(a) Cal. Code Regs. tit. 22, § 66261.24(a)(1)(B)	Applicable	Applicable for determining whether waste is hazardous.

Notes:

- ^a many potential action-specific ARARs contain chemical-specific limitations and are addressed in the action-specific ARAR tables
- ^b only the substantive provisions of the requirements cited in this table are potential ARARs
- ^c statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only pertinent substantive requirements of the specific citations are considered potential ARARs

Acronyms/Abbreviations:

ARAR – applicable or relevant and appropriate requirement
 Cal. Code Regs. – *California Code of Regulations*
 C.F.R. – *Code of Federal Regulations*
 ch. – chapter
 RCRA – Resource Conservation and Recovery Act
 § – section
 TCLP – toxicity characteristic leaching procedure
 tit. – title
 U.S.C. – *United States Code*

Table 7
Potential Federal Location-Specific ARARs

Location	Requirement	Prerequisite	Citation^a	ARAR Determination	Comments
National Historic Preservation Act of 1966, as Amended (16 U.S.C. § 470-470x-6)^b					
Historic project owned or controlled by federal agency	Action taken to preserve historic properties; planning of action to minimize harm to properties listed on or eligible for listing on the National Register of Historic Places.	Property included in or eligible for the National Register of Historic Places.	16 U.S.C. § 470-470x-6 36 C.F.R. pt. 800 40 C.F.R. § 6.301(b)	Applicable	Substantive provisions are potentially applicable because IR Site 73 falls within a known archaeological site, CA-ORA-322/1,118.
Archaeological and Historic Preservation Act (16 U.S.C. § 469-469c-1)^b					
Within area where action may cause irreparable harm, loss, or destruction of significant artifacts	Construction on previously undisturbed land would require an archaeological survey of the area. Data recovery and preservation would be required if significant archaeological or historical data were found on-site. The responsible official or Secretary of the Interior is authorized to undertake data recovery and preservation.	Regulated alteration of terrain caused as a result of a federal construction project or federally licensed activity or program where action may cause irreparable harm, loss, or destruction of significant artifacts.	16 U.S.C. § 469-469c-1 40 C.F.R. § 6.301(c)	Applicable	Substantive provisions are potentially applicable because IR Site 73 falls within a known archaeological site, CA-ORA-322/1,118.
Archaeological Resources Protection Act of 1979, as Amended (16 U.S.C. § 470aa-470mm)^b					
Archaeological resources on federal land	Prohibits unauthorized excavation, removal, damage, alteration, or defacement of archaeological resources located on public lands unless such action is conducted pursuant to a permit.	Archaeological resources on federal land.	Pub. L. No. 96-95 16 U.S.C. § 470aa-470mm	Applicable	Substantive provisions are potentially applicable because IR Site 73 falls within a known archaeological site, CA-ORA-322/1,118.

(table continues)

Table 7 (continued)

Notes:

- ^a only the substantive provisions of the requirements cited in this table are potential ARARs
- ^b statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific citations are considered potential ARARs

Acronyms/Abbreviations:

- ARAR – applicable or relevant and appropriate requirement
- C.F.R. – *Code of Federal Regulations*
- DON – Department of the Navy
- IR – Installation Restoration (Program)
- pt. – part
- Pub. L. No. – public law number
- § – section
- U.S.C. – *United States Code*

Table 8
Potential State Location-Specific ARARs

Location	Requirement	Prerequisite	Citation ^a	ARAR Determination	Comments
California Endangered Species Act (Cal. Fish & Game Code §§ 2050-2116) ^b Wildlife species	Prohibits the taking (including poisoning) of birds and mammals.	Activity that would involve the taking of birds or mammals.	Cal. Fish & Game Code § 3005(a)	Relevant and appropriate	The soil at the site may potentially be a risk to birds at the site that is similar to a poison. The removal action alternative at IR Site 73 will not involve the taking of birds or mammals.

Notes:

- ^a only the substantive provisions of the requirements cited in this table are potential ARARs
- ^b statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs follow each general heading; only substantive requirements of the specific citations are considered potential ARARs

Acronyms/Abbreviations:

ARAR – applicable or relevant and appropriate requirement
 Cal. Fish & Game Code – *California Fish and Game Code*
 DON – Department of the Navy
 IR – Installation Restoration (Program)
 § – section

Table 9
Potential Federal Action-Specific ARARs

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Resource Conservation and Recovery Act (42 U.S.C. §§ 6901–6991(ii)) ^b						
On-site waste generation	Person who generates waste shall determine if that waste is a hazardous waste.	Generator of waste.	Cal. Code Regs. tit. 22, § 66262.10(a), 66262.11	2		Applicable for any operation where hazardous waste is generated. There is a potential for excavated soil to be classified as RCRA hazardous waste due to localized concentrations of lead. The determination of whether wastes generated during removal activities are hazardous will be made at the time the wastes are generated.
	Requirements for analyzing waste for determining whether waste is hazardous.	Generator of waste.	Cal. Code Regs. tit. 22, § 66264.13(a) and (b)	2		Applicable for any operation where hazardous waste is generated. There is a potential for excavated soil to be classified as RCRA hazardous waste due to localized concentrations of lead. The determination of whether wastes generated during removal activities are hazardous will be made at the time the wastes are generated.

(table continues)

Table 9 (continued)

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		
				A	RA	TBC
Hazardous waste accumulation	On-site hazardous waste accumulation is allowed for up to 90 days as long as the waste is stored in containers or tanks, on drip pads, inside buildings, is labeled and dated, etc.	Accumulate hazardous waste.	Cal. Code Regs. tit. 22, § 66262.34	2		Applicable for any operation where hazardous waste is generated. The determination of whether wastes generated during removal action activities are hazardous will be made at the time the wastes are generated.
Staging pile	A staging pile must facilitate a remedy that is reliable, effective, and protective; and be designed using appropriate measures (e.g., liners, covers, run-on/run-off controls, groundwater monitoring system) to prevent or minimize releases and cross media transfers of hazardous wastes and constituents. Closure requirements for the piles are specified. The staging piles do not trigger LDRs.	Temporary (up to 2 years) storage of hazardous waste.	40 C.F.R., § 264.554	2		Potentially applicable for accumulating waste, generated during removal action, for characterization and staging prior to off-site disposal.

(table continues)

Alternatives: 1 – No action^a and 2 – Excavation with off-site disposal

Action	Requirement	Prerequisites	Citation	ARAR Determination			Comments
				A	RA	TBC	
Clean Air Act (42 U.S.C. §§ 7401–7671) ^b							
Fugitive dust emissions	Shall not cause or allow emissions of fugitive dust such that the presence of such dust remains visible in the atmosphere beyond the property line of the emission source and shall not cause or allow PM ₁₀ levels to exceed 50 micrograms per cubic meter when determined, by simultaneous sampling, as the difference between upwind and downwind samples.	Applies to any source of dust or fumes, including lead-contaminated soil.	SCAQMD Rule 403	2			Dust emissions may occur during removal activities. Engineering controls will be used to limit dust emissions.

Notes:

- ^a discussion of compliance with action-specific ARARs is not appropriate
- ^b statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of specific citations are considered potential ARARs

Acronyms/Abbreviations:

A – applicable

ARAR – applicable or relevant and appropriate requirement

Cal. Code Regs. – *California Code of Regulations*

C.F.R. – *Code of Federal Regulations*

DON – Department of the Navy

EE/CA – engineering evaluation/cost analysis

LDR – land-disposal restriction

PM₁₀ – particulate matter, less than 10 micrometers in diameter

RA – relevant and appropriate

RCRA – Resource Conservation and Recovery Act

§ – section

SCAQMD – South Coast Air Quality Management District

TBC – to be considered

tit. – title

U.S.C. – *United States Code*

Table 10
Potential State Action-Specific ARARs

EE/CA Alternatives: 1 – No action ^a and 2 – Excavation with off-site disposal						
Action	Requirement	Prerequisites	Citation	ARAR Determination		Comments
				A	RA TBC	
California Fish and Game Code ^b						
Actions impacting birds or mammals	Prohibits the taking of birds and mammals, including the taking by poison.	Birds and mammals.	Cal. Fish & Game Code § 3005(a)	2		Procedural aspects are not ARARs; certain substantive provisions pertaining to take of birds or mammals with a poisonous substance are potentially applicable. The removal activity will prevent “take” of birds and mammals by removing soil contaminants.

Notes:

^a discussion of compliance with action-specific ARARs is not appropriate

^b statutes and policies, and their citations, are provided as headings to identify general categories of potential ARARs for the convenience of the reader; listing the statutes and policies does not indicate that the DON accepts the entire statutes or policies as potential ARARs; specific potential ARARs are addressed in the table below each general heading; only substantive requirements of the specific actions are considered potential ARARs

Acronyms/Abbreviations:

A – applicable
 ARAR – applicable or relevant and appropriate requirement
 Cal. Fish & Game Code – *California Fish and Game Code*
 DON – Department of the Navy
 EE/CA – engineering evaluation/cost analysis
 RA – relevant and appropriate
 § – section
 TBC – to be considered

ATTACHMENT D

ADMINISTRATIVE RECORD INDEX

SEAL BEACH NWS

DRAFT ADMINISTRATIVE RECORD FILE INDEX - UPDATE (SORTED BY RECORD DATE / RECORD NUMBER)

DOCUMENTS RELATED TO SITE 73

UIC No. / Rec. No.	Doc. Control No.	Record Type	Constr./Guid. No.	Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 000057 MOUNTAIN	149228.07.WP				09-24-1999	CH2M HILL	DRAFT FOCUSED SITE INSPECTION	ADMIN RECORD	FS	012	IRON
PLAN N68711-96-D-2299 0403					08-30-1999	B. WONG	PHASE II WORK PLAN (SEE AR #278, #281, #285, #293 #321 & #322)		HAZ WASTE	016	136773761
					DO007	SOUTHWEST DIV			QA	025	IMAGED
					03.3	A. DICK			QAPP	037	SEAL_001
									SI	038	
										042	
										044	
										045	
										073	
										BLDG. 128	
N60701 / 000293 MOUNTAIN					05-24-2000	CITY OF SEAL	COMMENTS BY THE CITY OF SEAL BEACH	ADMIN RECORD	DOO	073	IRON
NONE					10-11-1999	BEACH	ON THE DRAFT FOCUSED SITE		SI	SWMU 24	136773767
LTR					NONE	W. HURLEY	INSPECTION PHASE II WORK PLAN				IMAGED
NONE						NWS SEAL	(REFERENCE AR #57, #269, #278, #281, & #285)		SWMU		IMAGED
0002						P.F. TAMASHIRO					SEAL_002

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UIC No. / Rec. No.	Doc. Control No.	Prc. Date Record Date CTO No.	Author Affil. Author Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 000322	MOUNTAIN	06-01-2000	CH2MHILL	DRAFT FINAL FOCUSED SITE INSPECTION	ADMIN RECORD	AOC	012	IRON
PROJ #		01-27-2000		PHASE II WORK PLAN (SEE AR #57 - DRAFT	INFO	BTEX	013	136773768
149228.07.WP		DO007	NAVFAC -	WORK PLAN, #269, & #323, AR #384 - DTSC	REPOSITORY		016	IMAGED
149228.07.WP		DO007	NAVFAC -	COMMENTS, AR #385 - CRWQCB	REPOSITORY	COPC	016	IMAGED
PLAN			SOUTHWEST			DQO	025	SEAL_003
PLAN			DIVISION	COMMENTS)		EOD	037	SEAL_003
N68711-96-D-2299						EPRG	038	
0498						H&SP	042	
						IAS	044	
						IRP	045	
						NFA	073	
						OU	AOC 6	
						PA	BLDG. 128	
						PAH	SWMU 24	
						PCB	SWMU 56	
						PRG	SWMU 57	
						QAPP		
						RCRA		
						RFA		
						SI		
						SVOC		
						SWMU		
						TPH		
						UST		
						VOC		
						WORK PLAN		
N60701 / 000250	MOUNTAIN	03-01-2000	DON-NWS, SEAL	RESPONSE TO LETTER DATED 1/27/00,	ADMIN RECORD	SI	073	IRON
NONE		02-01-2000	BEACH, CA	WHICH DISAGREED WITH THE NAVY'S		WORK PLAN		136773766
LTR			D. BAILLIE	CONCLUSION ON THE FOCUSED SITE				IMAGED
LTR		NONE	D. BAILLIE	INSPECTION PHASE II FINAL WORK PLAN.				IMAGED
NONE			STATE HISTORIC					SEAL_001
			PRESERVATION					
0001			D. ABEYTA					

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N60701 / 001339	SOUTHWEST	08-29-2001	NAVFAAC -			TRANSMITTAL OF THE MINUTES OF THE	ADMIN RECORD	ACTMEMO	001	
SWDIV SER		08-27-2001	SOUTHWEST			AUGUST 8, 2001 PROJECT MANAGERS		CRP	004	DIVISION
5NEN.SL/616		NONE	DIVISION			MEETING FOR REVIEW		EE/CA	005	
5NEN.SL/616			M. GOOD					FFSRA	006	
MM			DTSC - CYPRESS					FS	007	
MM			K. LEIBEL					GW	014	
NONE								METALS	019	
0009								MONITORING	022	
								MTG MINS	040	
								RAB	070	
								RD	073	
								REMOVAL	SWMU 24	
								RSE		
								SI		
								SMP		
								SWMU		

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N60701 / 001340 SOUTHWEST PROJECT NO. 158283.09.RT PLAN	09-13-2001 09-04-2001 DO 9	CH2M HILL - SANTA ANA NAVFAC - SOUTHWEST DIVISION	FINAL INSTALLATION RESTORATION PROGRAM COMMUNITY RELATIONS PLAN	ADMIN RECORD INFO REPOSITORY	AOC CERCLA CRP ORDNANCE PCB PESTICIDES PIM PUBNOT RCRA RFA SARA SOLVENTS SWMU UST	001 002 003 004 005 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 035 036 037 038 039 040 041 042 043 044	 DIVISION

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N60701 / 001005 SOUTHWEST NWSSB SER N45W/0265 N45W/0265 MM NONE NONE 0012	11-07-2001 10-22-2001 NONE NONE	NWS SEAL P.F. TAMASHIRO GENERAL PUBLIC GENERAL PUBLIC COMMUNITY MEMBERS	TRANSMITTAL OF THE MINUTES FROM THE 47TH RESTORATION ADVISORY BOARD MEETING OF OCTOBER 10, 2001 - INCLUDES THE AGENDA FOR THE NOVEMBER 14, 2001 MEETING	ADMIN RECORD INFO REPOSITORY REPOSITORY	ACTMEMO CRP EE/CA FS GW LF MONITORING MTG MINS PIM RAB ROD RSE SMP TCE UST WELLS	045 046 047 048 049 050 051 070 073 074 004 005 006 006 007 014 040 070 073	DIVISION

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N60701 / 000652					11-02-2001	NAV/FAC -	TRANSMITTAL OF THE MINUTES OF THE	ADMIN RECORD	ACTMEMO	001	
SOUTHWEST											
SWDIV SER					10-30-2001	SOUTHWEST	OCTOBER 10, 2001 PROJECT MANAGERS		ARAR	004	DIVISION
5NEN:SL/674							MEETING FOR REVIEW				
5NEN:SL/674					NONE				CRP	005	
MM						M. GOOD					
MM						DTSC - CYPRESS			EE/CA	006	
NONE						K. LEIBEL			FFSRA	007	
0009											
									FS	014	
									GW	019	
									MONITORING	022	
									MTG MINS	040	
									MW	070	
									RAB	073	
									RD	SWMU 24	
									REMOVAL		
									ROD		
									RSE		
									SI		
									SMP		
									WELLS		

UIC No. / Rec. No.	Doc. Control No.	Record Type	Confr./Guid. No.	Approx. # Pages	Prc. Date	Record Date	Author Affil.	Author	Recipient Affil.	Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 001357					12-28-2001		NWS SEAL				MINUTES OF 48TH RESTORATION	ADMIN RECORD	ACTMEMO	004	
SOUTHWEST															
NWSSB SER					11-14-2001		P. F. TAMASHIRO				ADVISORY BOARD MEETING OF NOVEMBER 14, 2001 - INCLUDES AGENDA FOR JANUARY 9, 2002 MEETING	INFO REPOSITORY	CEQA	005	DIVISION
N45W/0307					NONE								EE/CA	006	
N45W/0307					NONE								FS	007	
MM							COMMUNITY								
NONE							MEMBERS								
NONE													GW	014	
0012													LF		
													MONITORING	022	
													MITG MINS	040	
													MW	070	
													PIM	073	
													PUBNOT		SWMU 24
													RAB		
													REMOVAL		
													ROD		
													RSE		
													SI		
													SMP		
													SOIL		
													SWMU		

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N60701 / 001348 SOUTHWEST	11-19-2001	CH2M HILL	DRAFT SITE MANAGEMENT PLAN UPDATE	ADMIN RECORD	AOC	001	
PROJECT NO. 158091.06.RT 158091.06.RT PLAN PLAN N68711-96-D-2299 0250	11-15-2001 DO 6 DO 6	B. WONG NAV/FAC - NAV/FAC - SOUTHWEST DIVISION S. LE	FOR THE INSTALLATION RESTORATION PROGRAM	INFO REPOSITORY REPOSITORY	ARAR AST ATEIP BTEX CAA CEQA COC COEC COPC CRP CWA DDT DERA DQO EIS EOD FFSRA FS GW IRP MONITORING MTBE MW NCP NEPA NFA NHPA NPL PA PAH PCB PCE PID QC	003 006 006 007 008 009 010 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 026 027 028 029 030 031 032 033 034 035 036 037 038	DIVISION

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															RAB	039	
															RCRA	040	
															RFA	041	
															RFI	042	
															RI	043	
															ROD	044	
															RSE	045	
															SARA	046	
															SI	047	
															SMP	048	
															SVOC	049	
															SWMU	050	
															TCA	051	
															TCE	052	
															TPH	053	
															TSCA	054	
															UST	055	
															UXO	056	
															VOC	057	
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	Record Type	Record Date	Author					
	Contr./Guid. No.	CTO No.	Recipient Affil.					
	Approx. # Pages	EPA Cat. #	Recipient					
N60701 / 001353	SOUTHWEST	12-12-2001	BECHTEL	DRAFT ENGINEERING EVALUATION/COST	ADMIN RECORD	ARAR	BLDG. 241	
CTO-0151/0316	RPT	11-20-2001	NATIONAL, INC.	ANALYSIS (EE/CA) NON-TIME-CRITICAL	INFO	ARSENIC	OU 1	
RPT		00151	J. FRENCH	REMOVAL ACTION FOR THE WATER	REPOSITORY	CANCER	OU 2	
N68711-92-D-4670	RPT	00151	J. FRENCH	TOWER AREA (SEE AR #1368 - RESPONSE TO COMMENTS)	REPOSITORY	COC	OU 3	
			NAVFAC -			COPC	OU 4	
			SOUTHWEST			DATA	OU 5	
			DIVISION			EE/CA	OU 6	
						FFSRA	OU 7	
						METALS	073	
						NTCRA		
						PAH		
						PRG		
						QC		
						RAB		
						RACER		
						RCRA		
						REMOVAL		
						SOIL		
						SVOC		
						WATER		

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UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Author	Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 001351	SOUTHWEST	12-12-2001	NAVFAAC -			MINUTES OF THE 14 NOVEMBER 2001	ADMIN RECORD	ACTMEMO	001	
SWDIV SER		11-30-2001	SOUTHWEST			PROJECT MANAGERS MEETING	CONFIDENTIAL	CRP	004	DIVISION
5NEN.SL/695			DIVISION			(DISTRIBUTION LIST CONTAINS		EBS	005	
5NEN.SL/695		NONE				CONFIDENTIAL ADDRESS)		EE/CA	006	
MM			M. GOOD					FFSRA	007	
MM			DTSC - CYPRESS					FS	014	
NONE			K. LEIBEL					MTG MINS	019	
0011								RD	022	
								REMOVAL	040	
								RSE	070	
								SMP	073	
								WORK PLAN	SWMU 24	
N60701 / 000549	SOUTHWEST	01-11-2002	NAVFAAC -			TRANSMITTAL OF MINUTES OF 12	ADMIN RECORD	ACTMEMO	001	
SWDIV SER		01-03-2002	SOUTHWEST			DECEMBER 2001 PROJECT MANAGERS		ARAR	004	DIVISION
5NEN.SL/705			DIVISION			MEETING FOR REVIEW		EE/CA	005	
5NEN.SL/705		NONE						EOD	006	
MM			M. GOOD					FFSRA	007	
MM			DTSC - CYPRESS					GW	014	
NONE			K. LEIBEL					MONITORING	019	
0010								MTG MINS	022	
								MW	040	
								NFA	070	
								ORDNANCE	073	
								RAB	SWMU 24	
								RD		
								REMEDIAL		
								REMOVAL		
								RSE		
								SI		
								SMP		
								SOIL		
								WELLS		

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UIC No. / Rec. No.	Doc. Control No.	Prc. Date	Author Affil.	Author	Subject	Classification	Keywords	Sites	Location Box No.
Record Type	Record Date	Record Date	Recipient	Recipient					
Contr./Guid. No.	CTO No.	EPA Cat. #							
Approx. # Pages									
N60701 / 001360	01-17-2002	01-17-2002	NAV/FAC -	NAV/FAC -	MINUTES OF THE 9 JANUARY 2002	ADMIN RECORD	ACTMEMO	001	
SOUTHWEST									
SWDIV SER	01-16-2002	01-16-2002	SOUTHWEST	SOUTHWEST	PROJECT MANAGERS MEETING	CONFIDENTIAL	EE/CA	004	DIVISION
5NEN.SL/720			DIVISION	DIVISION	(DISTRIBUTION LIST CONTAINS		FFSRA	005	
5NEN.SL/720	NONE	NONE	S. LE	S. LE	CONFIDENTIAL ADDRESS)		FS	006	
MM			DTSC - CYPRESS	DTSC - CYPRESS			GW	007	
MM			& VARIOUS	& VARIOUS			MTG MINS	014	
NONE			K. LEIBEL &	K. LEIBEL &			RAB	019	
0010			REGULATORS	REGULATORS			REMEDIAL	022	
							REMOVAL	040	
							RSE	070	
							SI	073	
							SMP	SWMU 24	

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N60701 / 001398 SOUTHWEST CH2MHILL PROJECT NO. 149228.07.RT RPT					05-01-2002 01-28-2002 DO 7	CH2M HILL NAVFAC - SOUTHWEST DIVISION	FOCUSED SITE INSPECTION PHASE II REPORT	ADMIN RECORD INFO REPOSITORY	ARSENIC BTX COEC COPC DCA DCE DQO DRUMS EM EOD GC/MS GPR GW HAZ WASTE MEK METALS MW NFA ORDNANCE PAH PCB PCE PESTICIDES PRG SARA SEDIMENTS SI SOIL SOIL BORING SWMU TCA TCE TPH UST UXO	012 013 016 025 037 038 042 044 045 073 074 AOC 6 BLDG. 128 BLDG. 235 BLDG. 236 BLDG. 88 BLDG. 89 BLDG. 95 OU 4 OU 5 SWMU 24 SWMU 56 SWMU 57	DIVISION
N68711-96-D-2299 0600											

UIC No. / Rec. No. Doc. Control No. Record Type Contr./Guid. No. Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 001364 SOUTHWEST SWDIV SER 5NEN.SL/756 5NEN.SL/756 MM NONE NONE 0010	03-05-2002 02-25-2002 NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD DTSC, REGULATORS & OTHERS K. LEIBEL & DISTRIBUTION	MINUTES OF THE 13 FEBRUARY 2002 PROJECT MANAGERS MEETING (DISTRIBUTION LIST CONTAINS CONFIDENTIAL ADDRESS)	ADMIN RECORD CONFIDENTIAL INFO REPOSITORY	VOC WATER WELLS WORK PLAN ACTMEMO EE/CA EOD FFSRA FS GW MTG MINS PCE RAB RD ROD SI SMP SOIL SWMU TCE WELLS COMMENTS EE/CA NEPA PRG REFUGE RESPONSE SOIL	001 004 005 007 014 019 022 040 070 073 SWMU 24	DIVISION
N60701 / 001368 SOUTHWEST CTO-0151/0356 MISC MISC N68711-92-D-4670 0020 0020	03-27-2002 03-12-2002 00151 00151	BECHTEL NATIONAL, INC. NAVFAC - SOUTHWEST DIVISION	RESPONSE TO COMMENTS ON THE DRAFT ENGINEERING EVALUATION/COST ANALYSIS NON-TIME-CRITICAL REMOVAL ACTION FOR THE WATER TOWER AREA (COMMENTS BY DTSC, DTSC - HERD, CRWQCB, DEPT. OF FISH & GAME, CITY OF SB, & RAB MEMBER - W. HURLEY) (SEE AR #1353 - EE/CA)	ADMIN RECORD INFO REPOSITORY REPOSITORY		073	DIVISION

UIC No. / Rec. No.	Doc. Control No.	Record Type	Contr./Guid. No.	Approx. # Pages	Prc. Date Record Date CTO No. EPA Cat. #	Author Affil. Author Recipient Affil. Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 001365 SOUTHWEST	158091.06.RT	PROJECT NUMBER	03-19-2002	DO 6	03-27-2002	CH2M HILL	FINAL SITE MANAGEMENT PLAN UPDATE	ADMIN RECORD	ARAR	001	
158091.06.RT	158091.06.RT	DO 6	DO 6			B. WONG	FOR THE INSTALLATION RESTORATION PROGRAM	INFO REPOSITORY REPOSITORY	AST ATEIP	005 007 007	DIVISION
PLAN						NAVAFAC - NAVAFAC - SOUTHWEST DIVISION			ATIR	008	
N68711-96-D-2299 0200						S. LE			BTEX CEQA COC COEC COPC CRP CWA DERA DQO EBS EE/CA EIS EOD FFSRA FS GW IRP MONITORING MTBE NFA NPL ORDNANCE PA PAH PCB PCE PESTICIDES PID PRG RAB RCRA	009 011 012 013 014 015 016 017 018 019 020 021 022 023 024 025 035 036 037 038 039 040 041 042 043 044 045 046 047 048 049	

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N60701 / 001371 SOUTHWEST SWDIV SER 5NEN:SL788 5NEN:SL788 MM NONE NONE 0012	03-27-2002 03-25-2002 NONE	NAVFAC - SOUTHWEST DIVISION M. GOOD DTSC, CYPRESS & VARIOUS K. LEIBEL & DISTRIBUTION	TRANSMITTAL OF THE MINUTES OF THE PROJECT MANAGERS MEETING OF 13 MARCH, 2002 (DISTRIBUTION LIST CONTAINS A CONFIDENTIAL ADDRESS)	ADMIN RECORD CONFIDENTIAL INFO REPOSITORY	RFA RFI RI ROD RSE SARA SMP SVOC SWMU TCA TCE TPH TSCA UST UXO VOC ACTMEMO AOPC EE/CA EOD FFSRA FS GW MONITORING MTG MINS ORDNANCE RAB RD REMOVAL SI SMP SOIL SWMU WELLS	050 051 070 073 074 BLDG. 128 BLDG. 235 BLDG. 241 BLDG. 68 OU 1 OU 2 OU 3 OU 4 OU 5 OU 6 OU 7 004 005 007 014 022 040 070 073 SWMU 24	

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Record Type	Contr./Guid. No.	Record Date	Author					
Approx. # Pages	EPA Cat. #	CTO No.	Recipient					
N60701 / 001374	04-02-2002	04-02-2002	NWS SEAL	TRANSMITTAL OF THE MINUTES FROM THE	ADMIN RECORD	FS	005	
SOUTHWEST								
NWSSB SER	03-25-2002	03-25-2002	P.F. TAMASHIRO	50TH RESTORATION ADVISORY BOARD	INFO	GW	007	DIVISION
N45W/0142	NONE	NONE	RESTORATION	MEETING OF 13 MARCH 2002 WITH AGENDA	REPOSITORY	MONITORING	014	
N45W/0142	NONE	NONE	ADVISORY BOARD	FOR 10 APRIL 2002 MEETING	REPOSITORY	MTG MINS	014	
MM						MW	040	
MM			MEMBERS				070	
NONE			COMMUNITY					
NONE						NTCRA	073	
0010						ORDNANCE	SWMU 24	
						PCE		
						PIM		
						RAB		
						ROD		
						SOIL		
						SOIL BORING		
						SWMU		
						TCE		
						UST		
						UXO		
						WELLS		

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N60701 / 001373		SOUTHWEST			04-01-2002	BECHTEL	FINAL ENGINEERING EVALUATION/COST	ADMIN RECORD	ARAR	073	
CTO-0151/0349		RPT			03-28-2002	NATIONAL, INC.	ANALYSIS (EE/CA) NON-TIME-CRITICAL	INFO	CANCER	BLDG. 206	DIVISION
RPT					00151	J. FRENCH	REMOVAL ACTION FOR THE WATER	REPOSITORY	COC		
RPT					00151	J. FRENCH	TOWER AREA	REPOSITORY	COPC		
N68711-92-D-4670						NAVFAC -			DATA		
0275						SOUTHWEST			DISPOSAL		
						DIVISION			EE/CA		
									FFSRA		
									NCP		
									NEPA		
									NTCRA		
									PAH		
									PRG		
									QC		
									RAB		
									RCRA		
									REMOVAL		
									SOIL		
									SVOC		

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N60701 / 001391 SOUTHWEST					04-29-2002	BECHTEL	DRAFT ACTION MEMORANDUM/REMOVAL	ADMIN RECORD	ACTMEMO	073	
CTO-0151/0375 PLAN					04-26-2002	NATIONAL, INC. D. CROSSLEY	ACTION WORK PLAN, NON-TIME-CRITICAL REMOVAL ACTION AT THE WATER TOWER AREA		ARAR	BLDG. 206	DIVISION
N68711-92-D-4670 PLAN					00151	D. CROSSLEY NAVFAC - SOUTHWEST DIVISION			CANCER COPC		
0100									FFSRA METALS NCP NEPA NHPA NPL NTCRA PAH PCB PRG RCRA REMOVAL RSE SARA SOIL SVOC WORK PLAN		

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Record Type	Record Date	Author	Recipient					
Contr./Guid. No.	CTO No.							
Approx. # Pages	EPA Cat. #							
N60701 / 001400	05-08-2002	NAV/FAC -		TRANSMITTAL OF MINUTES OF PROJECT	ADMIN RECORD	ACTMEMO	001	
SOUTHWEST								
SWDIV SER	04-26-2002	SOUTHWEST		MANAGERS MEETING OF 10 APRIL 2002		AOPC	004	DIVISION
5NEN.MR/851		DIVISION		FOR REVIEW		CEQA	005	
5NEN.MR/851	NONE	M. GOOD				EE/CA	006	
MM		DTSC - CYPRESS				EOD	007	
MM		K. LEIBEL				FFSRA	014	
NONE						FS	019	
0010						GW	022	
						LEAD	040	
						MONITORING	070	
						MTG MINS	073	
						ORDNANCE	SWMU 24	
						QA		
						QC		
						RAB		
						RD		
						REMOVAL		
						ROD		
						SI		
						SMP		
						SOIL		
						SWMU		
						WELLS		

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Contr./Guid. No.	Record Date	Author	Recipient Affil.					
Approx. # Pages	CTO No.	Recipient						
	EPA Cat. #							
N60701 / 001402	05-23-2002	NAVFAC -		TRANSMITTAL OF MINUTES OF PROJECT	ADMIN RECORD	ACTMEMO	001	
SOUTHWEST								
SW/DIV SER	05-21-2002	SOUTHWEST		MANAGERS MEETING OF 8 MAY 2002 FOR		CEQA	004	DIVISION
5NEN.SL/878		DIVISION		REVIEW		EE/CA	005	
5NEN.SL/878	NONE					ERA	006	
MM		M. GOOD				FFSRA	007	
MM		DTSC - CYPRESS				GW	014	
NONE		K. LEIBEL				LEAD	019	
0011						MONITORING	022	
						MTG MINS	040	
						RAB	070	
						RD	073	
						REMOVAL	074	
						SI	SWMU 24	
						SOIL		
						UST		
N60701 / 001409	07-01-2002	NWS SEAL		TRANSMITTAL OF MINUTES FOR 52ND	ADMIN RECORD	ACTMEMO	005	
SOUTHWEST								
SB SER N45S/0287	06-20-2002	P.F. TAMASHIRO		RESTORATION ADVISORY BOARD	IR-READY	DCE	007	DIVISION
MM	NONE	COMMUNITY		MEETING OF 12 JUNE 2002		EE/CA	014	
NONE		MEMBERS				GW	040	
0011						MTBE	070	
0011						MTG MINS	073	
						PCE	074	
						RAB	OU 7	
						REMOVAL	SWMU 24	
						SOIL		
						UST		

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UIC No. / Rec. No.	Doc. Control No.	Record Type	Confr./Guid. No.	Approx. # Pages	Prc. Date	Author Affil.	Author	Recipient Affil.	Recipient	Subject	Classification	Keywords	Sites	Location Box No.
N60701 / 001410	SOUTHWEST				07-02-2002	FOSTER				DRAFT PROJECT WORK PLAN,	ADMIN RECORD	ARAR	073	
FWSD-RAC-02-1154	PLAN				06-24-2002	WHEELER				NON-TIME-CRITICAL REMOVAL ACTION AT THE WATER TOWER AREA, REVISION 0	INFO	ARSENIC	BLDG. 206	DIVISION
	PLAN				00023	H.				INCLUDES SAMPLING AND ANALYSIS	REPOSITORY	COC		
					00023	H.					REPOSITORY			
N68711-98-D-5713						HAMPARSUMIAN				PLAN, PROJECT CONTRACTOR QUALITY CONTROL PLAN, & ARCHAEOLOGICAL DATA RECOVERY PLAN		COPC		
0300						NAVFAC -						EM		
0300						NAVFAC -								
						SOUTHWEST								
						DIVISION								

UIC=N60701
No Keywords
Sites=073
No Classification

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ATTACHMENT E

PUBLIC NOTICES

AFFIDAVIT OF PUBLICATION

STATE OF CALIFORNIA,)
) ss.
County of Orange)

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of **The Orange County Register**, a newspaper of general circulation, published in the city of Santa Ana, County of Orange, and which newspaper has been adjudged to be a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of November 19, 1905, Case No A-21046, that the notice, of which the annexed is a true printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

November 29, 2001

"I certify (or declare) under the penalty of perjury under the laws of the State of California that the foregoing is true and correct":

Executed at Santa Ana, Orange County, California, on

Date: November 29, 2001


Signature

The Orange County Register
625 N. Grand Ave.
Santa Ana, CA 92701
(714) 796-7000 ext. 3002

PROOF OF PUBLICATION

Naval Weapons Station Seal Beach Proposal to Clean Up Lead-Contaminated Soil ***Public Comment Invited***

The Department of the Navy (DON) invites public comment on a proposal for removing soil contaminated with lead near a water tower at Naval Weapons Station Seal Beach, California. Although the lead contamination does not pose a threat to humans, it does pose risk to ecological receptors. The proposal, called an Engineering Evaluation/Cost Analysis (EE/CA), includes the results of environmental investigations at the site, the cleanup alternatives considered, and the removal action proposed as the best remedy. The public is encouraged to review and comment on this EE/CA during the 30-day public comment period of November 29, 2001 through December 29, 2001 (see details at the end of this notice). Both the investigation and this proposed removal action have been carried out with oversight from the California Environmental Protection Agency Department of Toxic Substances Control and the Regional Water Quality Control Board.

The draft EE/CA evaluated two alternatives that could be used in the removal action (clean up) for the water tower area called Installation Restoration Program Site 73. Alternatives evaluated in detail include: 1) no action, and 2) excavation with off-site disposal. Alternative 2 consists of two options: A) mechanical (e.g., backhoe) excavation with monitoring by an archaeological monitor and a Native American monitor, and B) manual excavation by an archaeologist of approximately 15% of the soil in order to recover any potential cultural resources (such as Native American artifacts), followed by mechanical excavation of the remaining soil with monitoring by an archaeological monitor and a Native American monitor.

The DON is recommending Alternative 2, Option A, which involves mechanical excavation of approximately 400 cubic yards of soil. An archaeological monitor and Native American monitor would be on-site during excavation to monitor for cultural resources. The water tower structure is scheduled for removal prior to this removal action, but the concrete footings would be left in place. During this removal action, the top 1.5 to 3 feet of the water tower footings will be removed (using jackhammer or other appropriate methods) to the depth of the excavation. The excavated soil would be transported by truck for off-site disposal at a permitted landfill. Afterward, soil samples from the excavation would be collected to verify that all contamination has been removed. Clean fill material would be added and compacted to return the site to original grade. The area would then be revegetated with sod. The on-site field activities are expected to begin in July 2002 and be completed in August 2002.

Following this public comment period, the comments will be evaluated and a responsiveness summary will be prepared describing what actions will be taken with regard to each comment. This summary will be mailed out to all parties who submit comments and will be placed in the information repositories listed below. In addition, the document will incorporate all appropriate changes and be finalized. After this process is complete, a decision document known as an Action Memorandum/Removal Action/Work Plan will be prepared.

The draft EE/CA and other reports about the site are available for public inspection and copying at the following public information repositories:

Seal Beach Public Library, Mary Wilson Branch
707 Electric Avenue, Seal Beach, CA
(562) 431-3584

Building 110, Naval Weapons Station Seal Beach
800 Seal Beach Blvd., Seal Beach, CA
(562) 626-7897

The full Administrative Record and files pertaining to this matter are available for public review at:

Southwest Division, Naval Facilities
Engineering Command
1220 Pacific Highway, San Diego, CA 92132-5190
Ms. Diane Silva, Code 4MG.DS, (619) 532-3676

Written comments will be accepted beginning November 29, 2001 and ending December 29, 2001. Comments must be postmarked by December 29, 2001 and mailed or faxed to the address below to be considered.

Commanding Officer
Environmental Department, Attn: Ms. Pei-Fen Tamashiro, Code N45S
Naval Weapons Station Seal Beach
800 Seal Beach Blvd., Seal Beach, CA 90740
FAX: (562) 626-7131
email: tamashiro.peifen@sbeach.navy.mil

The Naval Weapons Station Seal Beach has established a Restoration Advisory Board (RAB), made up of members of the community and representatives from local regulatory agencies, which holds regular public meetings to discuss ongoing environmental investigation and clean up work at the facility. For more information about the RAB or this proposed removal action, please contact:

Ms. Pei-Fen Tamashiro, Naval Weapons Station Seal Beach
(562) 626-7897
Mr. Gregg Smith, Public Affairs Officer, Naval Weapons Station Seal Beach (562) 626-7215
Ms. Katherine Leibel, California EPA Department of Toxic Substances Control (714) 484-5446
Ms. Linda Willhite, RAB Community Co-Chair (714) 839-5663

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PROOF OF PUBLICATION
(2015.5 C.C.P.)

STATE OF CALIFORNIA,
County of Orange

I am a citizen of the United States and a resident of the county afore-said; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the principal clerk of the printer of the SEAL BEACH SUN, a newspaper of general circulation, printed and published weekly in the City of Seal Beach, County of Orange and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Orange, State of California, under the date of 2/24/75. Case Number A82583; that the notice of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

11/29/2001
all in the year 2001.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Seal Beach, CA,
this 12 day of December, 2001.

Jay M. Ariz
Signature

PUBLICATION PROCESSED BY:
THE SUN NEWSPAPERS
216 Main Street
Seal Beach, CA 90740
(562) 430-7555 • (949) 759-7726

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Clerk's Filing Stamp

Proof of Publication of

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.....

Paste Clipping
of Notice
SECURELY
in This Space

**Naval Weapons Station Seal Beach
Proposal to Clean Up Lead-Contaminated Soil
Public Comment Invited**

The Department of the Navy (DON) invites public comment on a proposal for removing soil contaminated with lead near a water tower at Naval Weapons Station Seal Beach, California. Although the lead contamination does not pose a threat to humans, it does pose a risk to ecological receptors. The proposal, called Engineering Evaluation/Cost Analysis (EE/CA), includes the results of environmental investigations at the site, the cleanup alternatives considered, and the removal action proposed as the best remedy. The public is encouraged to review and comment on this EE/CA during the 30-day public comment period of November 29, 2001 through December 29, 2001 (see details at the end of this notice). Both the investigation and this proposed removal action has been carried out with oversight from the California Environmental Protection Agency Department of Toxic Substances Control and Regional Water Quality Control Board.

The draft EE/CA evaluated two alternatives that could be used in the removal action (clean up) for the water tower area called Installation Restoration Program Site 73. Alternatives evaluated in detail include: 1) no action, and 2) excavation with off-site disposal. Alternative 2 consists of two options: A) mechanical (e.g., backhoe) excavation with monitoring by an archaeological monitor and a Native American monitor, and B) manual excavation by an archaeologist of approximately 15% of the soil in order to recover any potential cultural resources (such as Native American artifacts), followed by mechanical excavation of the remaining soil with monitoring by an archaeological monitor and a Native American Monitor.

The DON is recommending Alternative 2, Option A, which involves mechanical excavation of approximately 400 cubic yards of soil. An archaeological monitor and Native American monitor would be on-site during excavation to monitor for cultural resources. The water tower structure is scheduled for removal prior to this removal action, but the concrete footings would be left in place. During this removal action, the top 1.5 to 3 feet of the water tower footings will be removed (using jackhammer or other appropriate methods) to the depth of the excavation. The excavated soil would be transported by truck for off-site disposal at a permitted landfill. Afterward, soil samples from the excavation would be collected to verify that all contamination has been removed. Clean fill material would be added and compacted to return the site to original grade. The area would then revegetated with sod. The on-site field activities are expected to begin in July 2002 and be completed in August 2002.

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1220 Pacific Highway, San Diego, CA 92132-5190
Ms. Diane Silva, Code 4MGDS, (619) 532-3676**

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**Commanding Officer
Environmental Department, Attn: Ms. Pei-Fen Tamashiro, Code N455**

**Naval Weapons Station Seal Beach
800 Seal Beach Blvd., Seal Beach, CA 90740
FAX: (562) 626-7131
email: tamashiro.peifen@sealbeach.navy.mil**

The Naval Weapons Station Seal Beach has established a Restoration Advisory Board (RAB), made up of members of the community and representatives from local regulatory agencies, which holds regular public meetings to discuss ongoing environmental investigation and clean up work at the facility. For more information about the RAB or this proposed removal action, please contact:

Ms. Pei-Fen Tamashiro, Naval Weapons Station Seal Beach (562) 626-7897
Mr. Gregg Smith, Public Affairs Officer, Naval Weapons Station Seal Beach (562) 626-7215
Ms. Katherine Leibel, California EPA, Department of Toxic Substances Control (714) 484-5446
Ms. Lindi Willhite, RAB Community Co-Chair (714) 839-5663

ATTACHMENT F

RESPONSES TO SIGNIFICANT COMMENTS

Table F-1

<p style="text-align: center;">RESPONSES TO COMMENTS*</p> <p style="text-align: center;">DRAFT ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN</p> <p style="text-align: center;">NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION PROGRAM SITE 73 – WATER TOWER AREA</p> <p style="text-align: center;">NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA</p>		
<p>Comments by: John E. Scandura, California Department of Toxic Substances Control</p> <p>Dated: 21 June 2002</p> <p>Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.</p> <p>Date: 01 July 2002</p>		
Number	Comment	Response
	<p><i>The Department of Toxic Substances Control (DTSC) has reviewed the final Action Memorandum/Removal Action Work Plan (AM/RAW) prepared by Bechtel National Inc., for the Department of Navy (DON), Southwest Division, Naval Facilities Engineering Command. The AM/RAW was prepared to document, for the Administrative Record, the DON's decision to undertake a non-time-critical removal action for lead contaminated soil at IR Site 73, the water tower area.</i></p> <p><i>DTSC concurs with the final AM/RAW and has no significant comments.</i></p>	<p>Comment acknowledged.</p>

Note:

- * These responses identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

Table F-2

<p style="text-align: center;">RESPONSES TO COMMENTS*</p> <p style="text-align: center;">DRAFT ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN</p> <p style="text-align: center;">NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION PROGRAM SITE 73 – WATER TOWER AREA</p> <p style="text-align: center;">NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA</p>		
<p>Comments by: Patricia Hannon, California Regional Water Quality Control Board</p> <p>Dated: 19 June 2002</p> <p>Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.</p> <p>Date: 01 July 2002</p>		
Number	Comment	Response
	<p><i>We have completed our review of the above-referenced document, dated April 26, 2002, which we received on April 29, 2002. The proposed action is to excavate the lead contaminated soil and dispose of it at an appropriate offsite facility. Based on the information in the work plan, we do not have any significant comments.</i></p>	<p>Comment acknowledged.</p>

Note:

* These responses identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

Table F-3

<p style="text-align: center;">RESPONSES TO COMMENTS* DRAFT ACTION MEMORANDUM/REMOVAL ACTION WORK PLAN NON-TIME-CRITICAL REMOVAL ACTION FOR INSTALLATION RESTORATION PROGRAM SITE 73 – WATER TOWER AREA NAVAL WEAPONS STATION SEAL BEACH, ORANGE COUNTY, CALIFORNIA</p>			
<p>Comments by: William G. Hurley, City of Seal Beach Environmental Quality Control Board</p> <p>Dated: 29 May 2002</p> <p>Response by: Bob Schilling and June Wheaton, Bechtel National, Inc.</p> <p>Date: 01 July 2002</p>			
Number	Comments	Responses	
1.	The City of Seal Beach Environmental Quality Control Board (Board) has reviewed the "Draft Action Memorandum/Removal Action Work Plan – Non-Time Critical Removal Action for Installation Restoration Program Site 73 – Water Tower Area", dated April 26, 2002, including all attachments. The Board concurs with the proposed removal action of lead-contaminated soils and the proposed work plan. The Board appreciates the response of the Navy to the previous concerns of the City regarding the utilization of a Native American monitor and incorporation of a "Test Phase" cultural resources analysis prior to the initiation of the soil remediation removal activities.	Comment acknowledged.	
2.	The City feels that the language in Section II.A.1. "Removal Site Evaluation", second paragraph, sixth sentence, on page 3, should be revised to indicate that IR Site 73 is located "within" a known archaeological site. The archaeological site, CA-ORA-322/1,118, is much larger in area than IR Site 73, and this should be clarified, as was done in Section II, paragraph one, on page 2.	The recommended revision will be made.	
3.	The City again expresses its full support for the proposed removal action, Alternative 2, Option B. This alternative greatly reduces risks to ecological receptors and the environment by removing soil contaminated with lead concentrations above the cleanup goal and minimizes the impact to cultural resources by having data recovery occur prior to mechanical excavation of the contaminated soils.	Comment acknowledged.	

Note:

* These responses identify proposed changes to the subject document text, tables and/or figures. The changes, as presented herein, have not undergone formal technical editing. The specific wording that appears in the next release of the document may differ slightly from that presented in these responses to comments, since the proposed changes will be technically edited as part of the overall document revision process. The edited version of the document will be reviewed by BNI to ensure that there are no substantive differences that would warrant further Navy and/or agency review and concurrence.

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ATTACHMENT G

PROJECT SCHEDULE

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